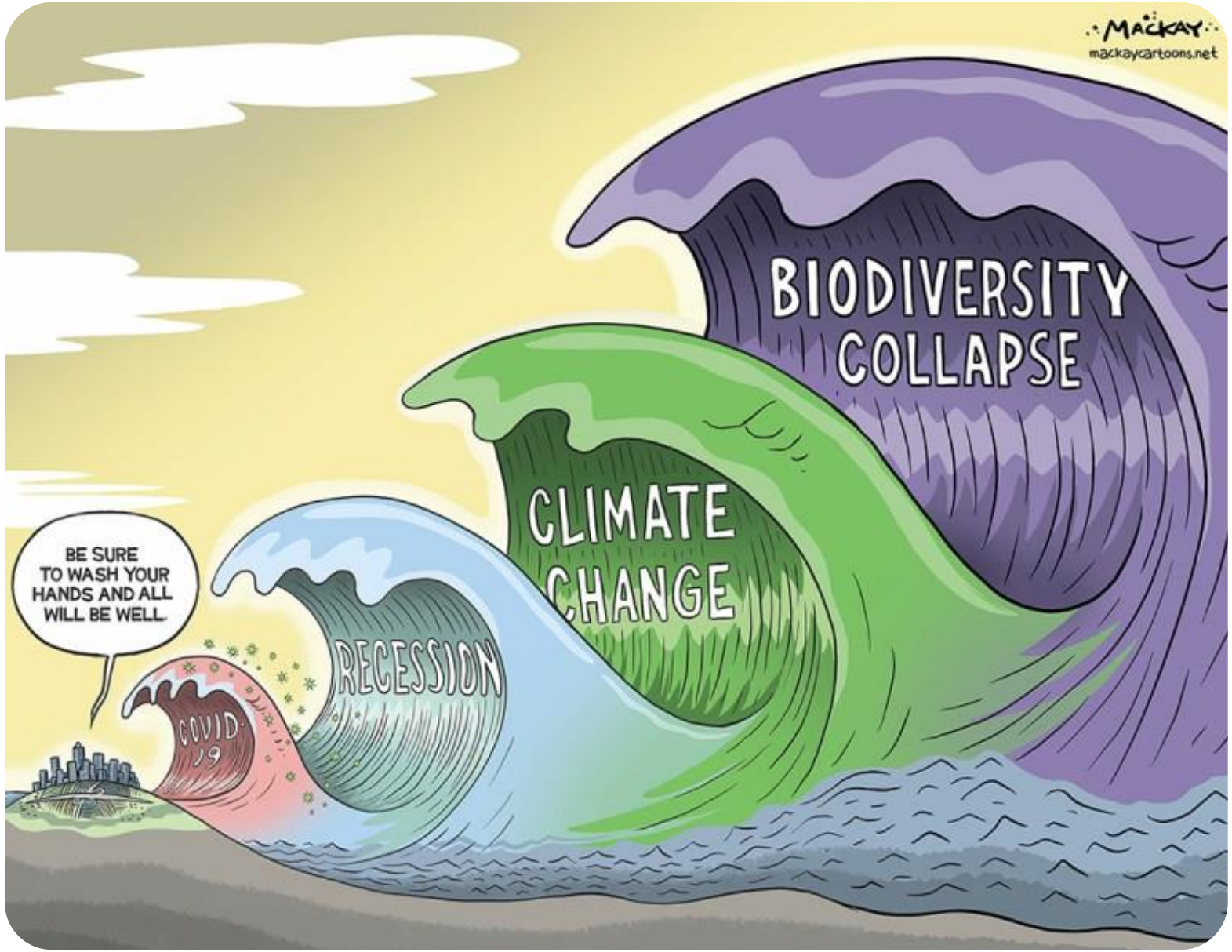
Vlinder

Voluntary carbon market: registries, marketplaces, exchanges

Sergey Ivliev

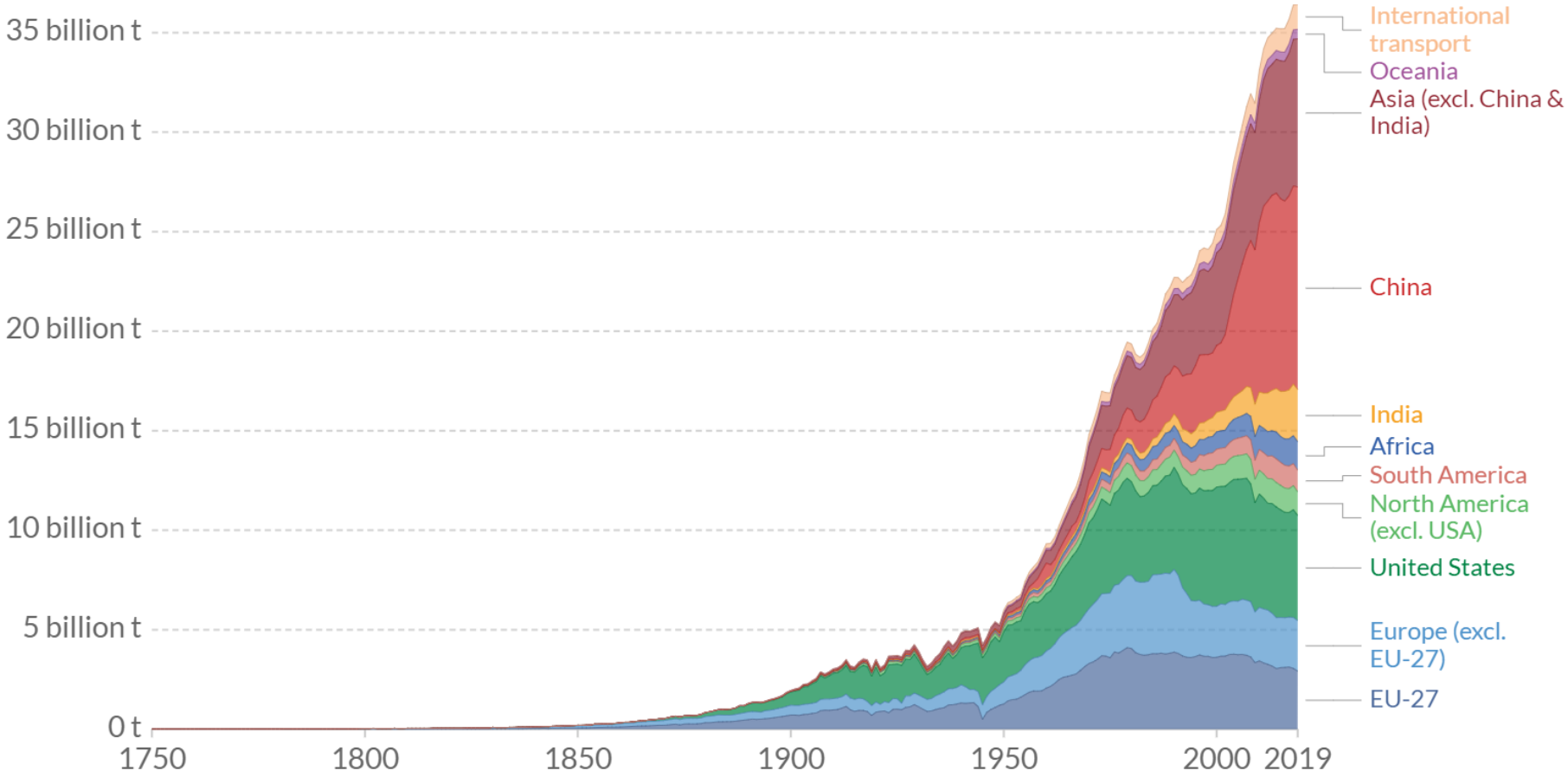

MACKAY
mackaycartoons.net
BIODIVERSITY COLLAPSE
CLIMATE CHANGE
RECESSION
COVID-19
BE SURE TO WASH YOUR HANDS AND ALL WILL BE WELL.

Vlinder

Problem

Vlinder

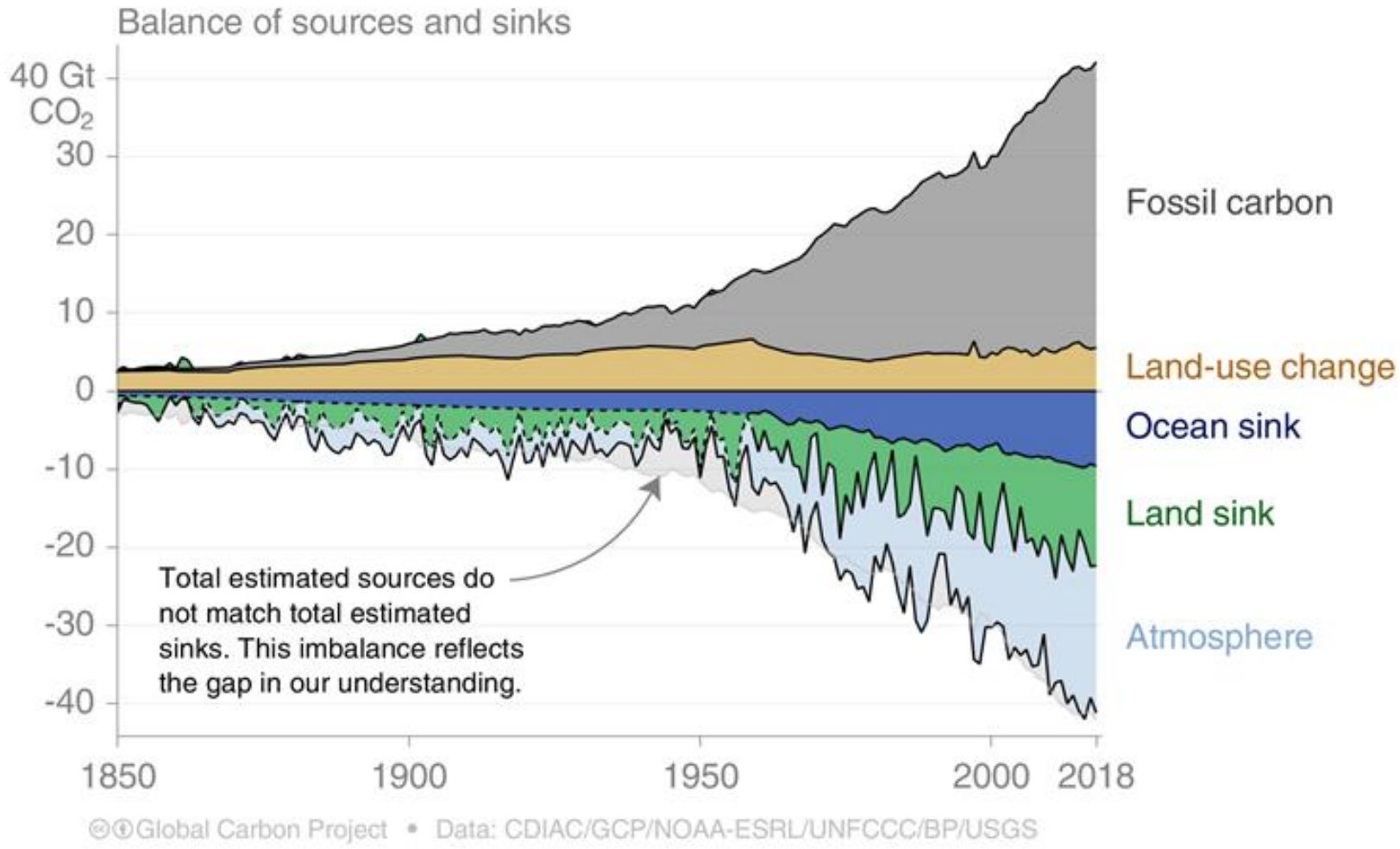
37 bln tons CO2 emitted by humans every year



https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions

Problem

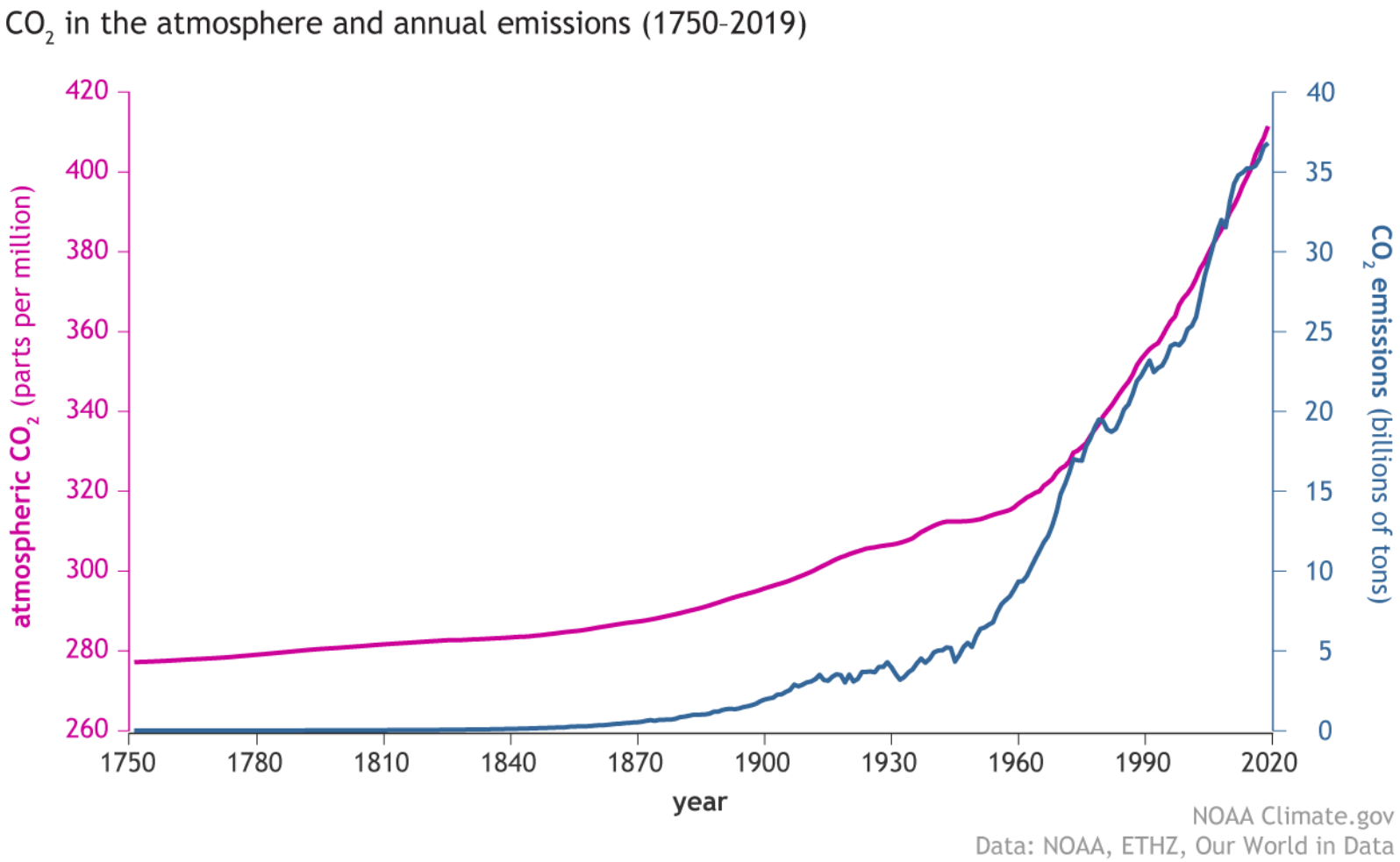
...half of it stays in the atmosphere



Problem

Vlinder

…increasing atmospheric CO2

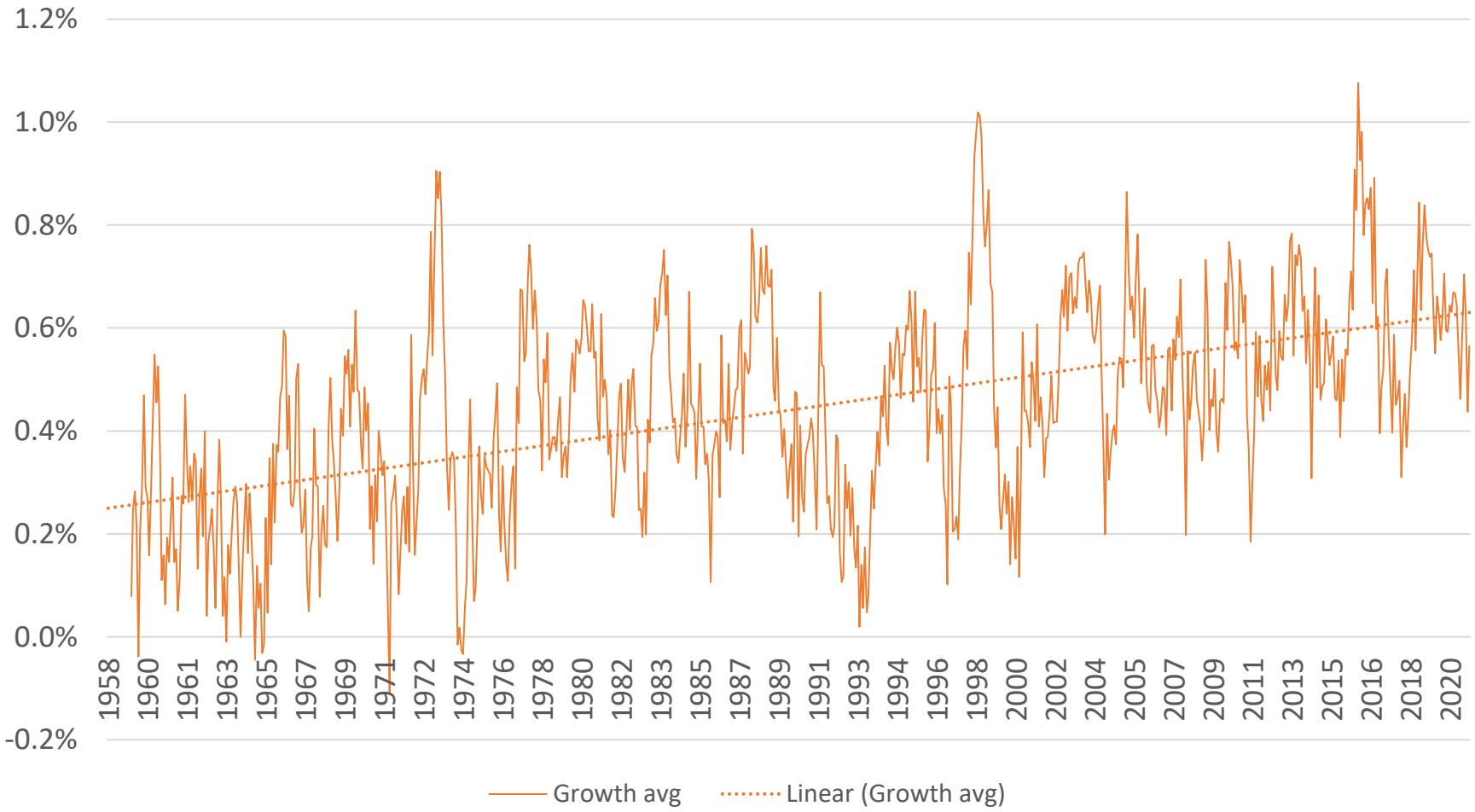


https://www.climate.gov/news-features/understanding-climate/climate-change-atmospheric-carbon-dioxide

Problem

Vlinder

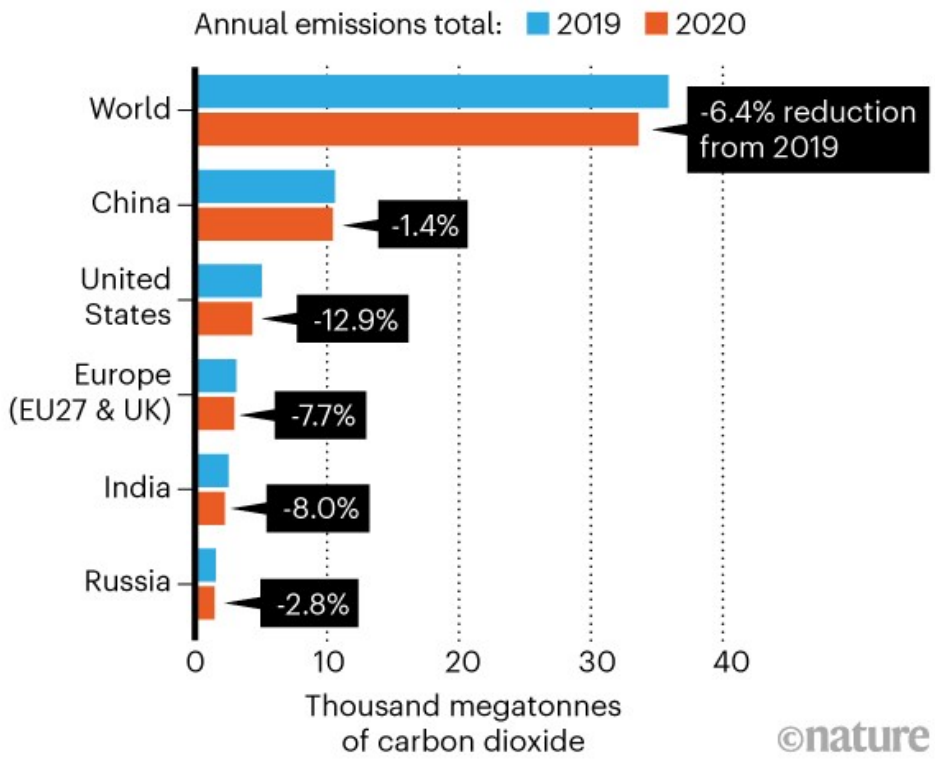
…growth accelerates ☹

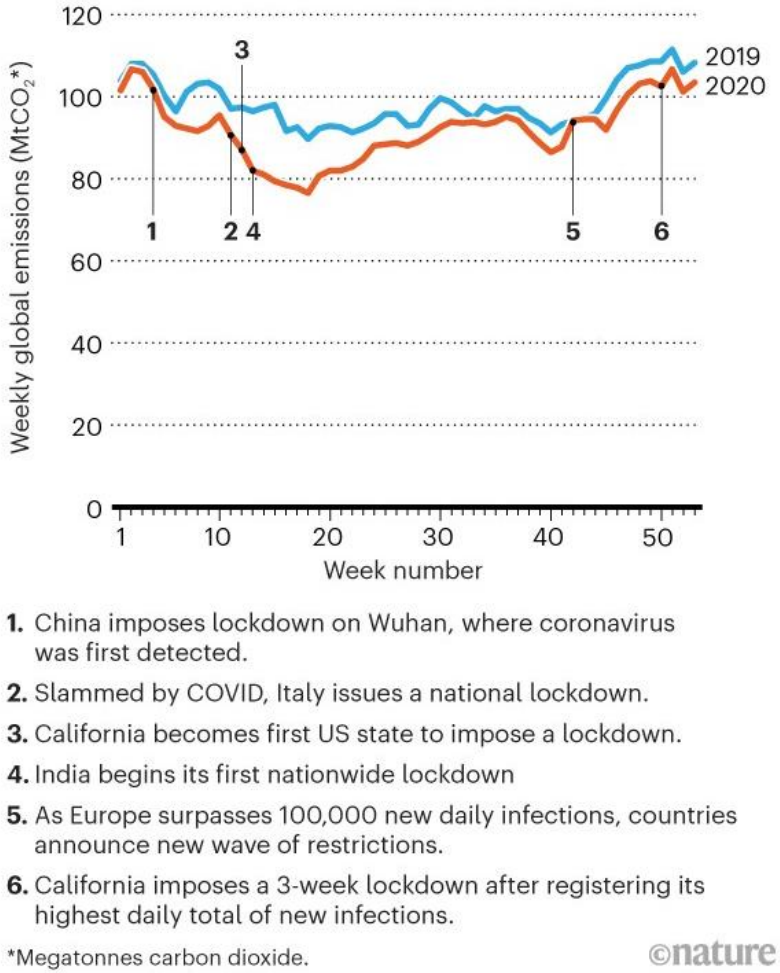


Problem

Vlinder

Pandemics has curbed CO2 emissions by… 6.4%



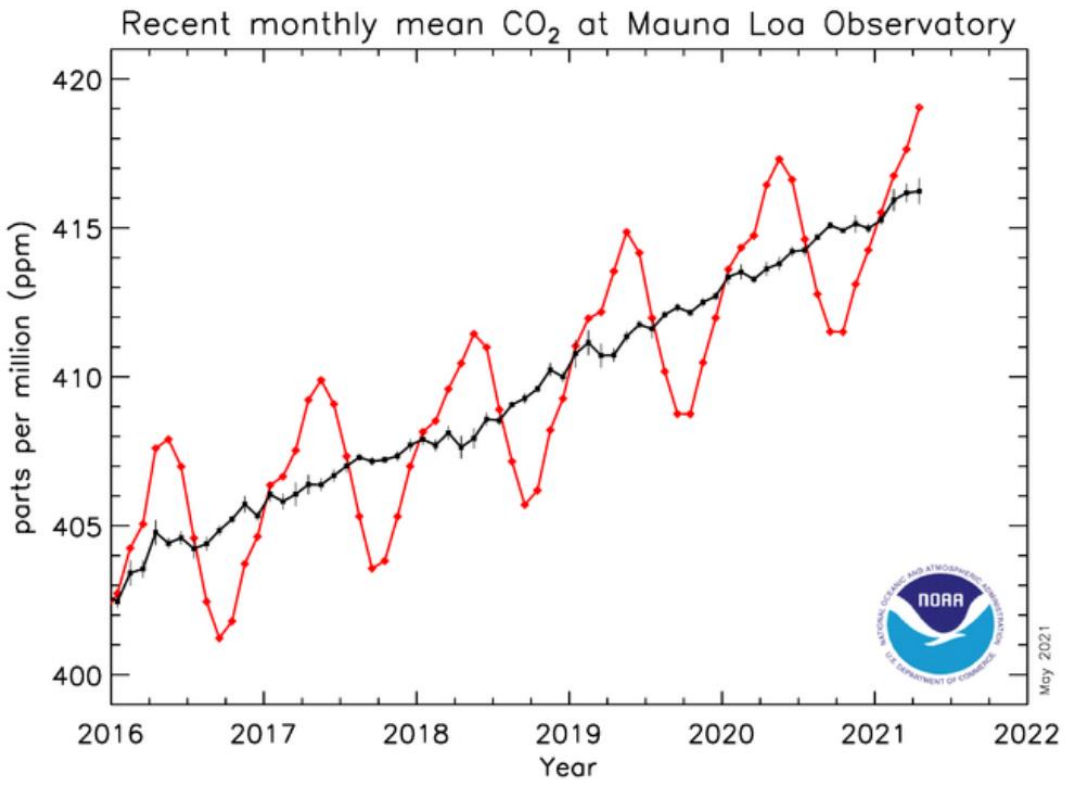


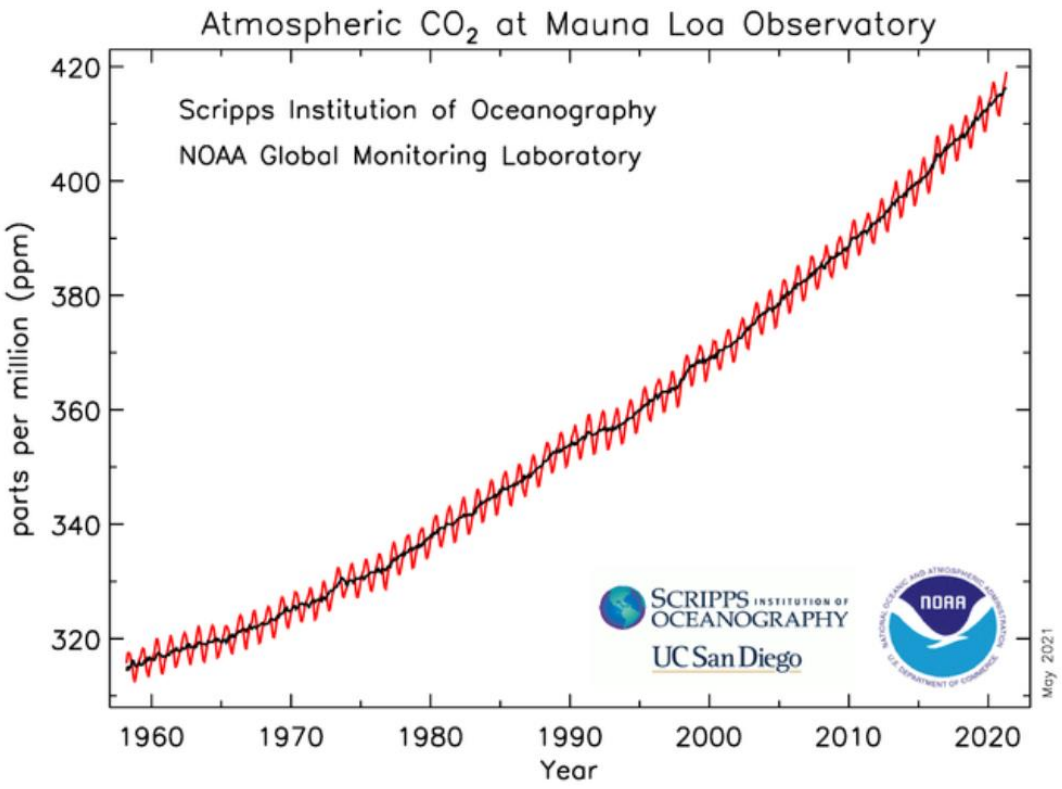
https://www.nature.com/articles/d41586-021-00090-3

Problem

Vlinder

…concentration reached a record 419.13 ppm in May 2021

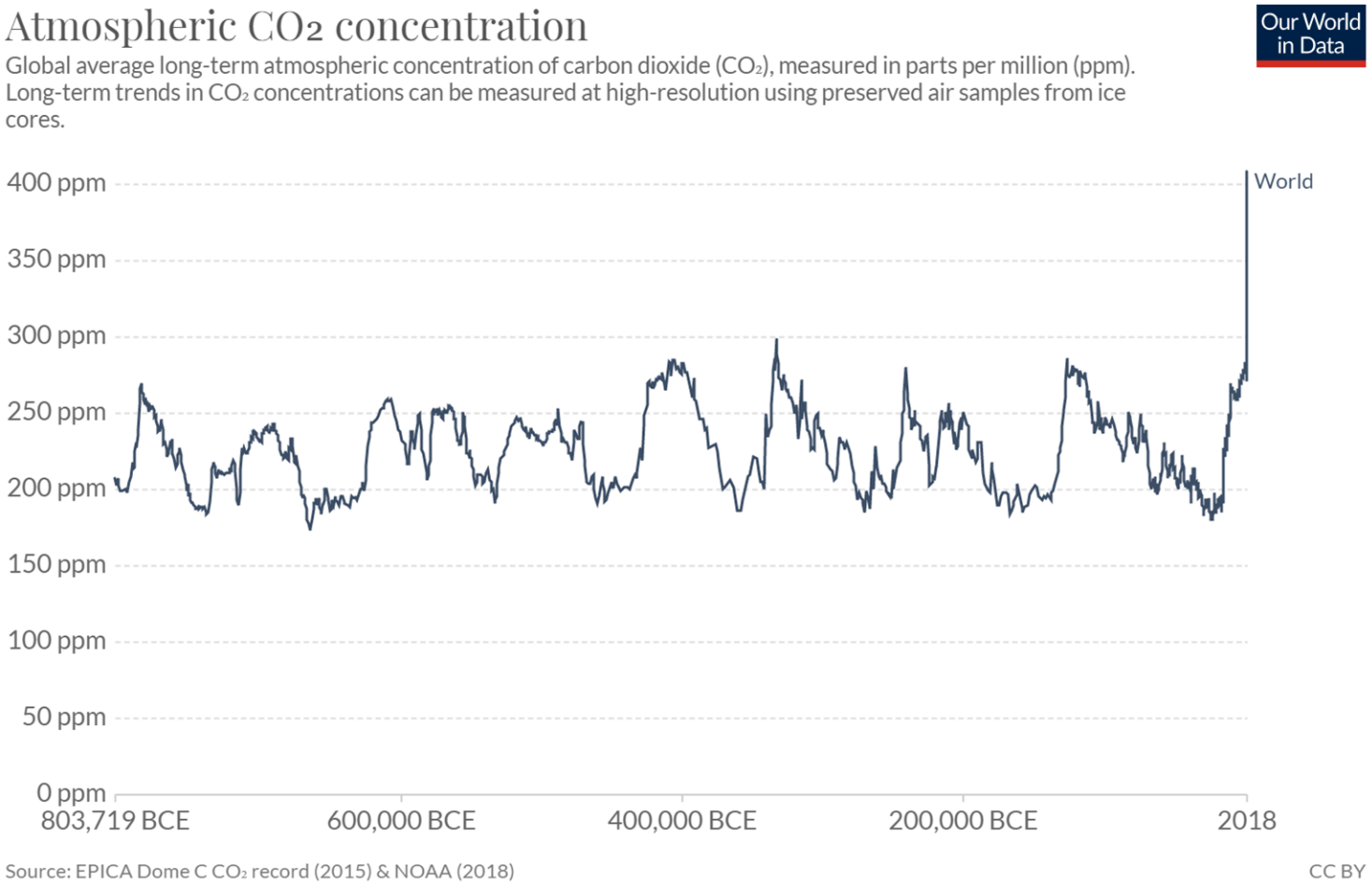




https://gml.noaa.gov/ccgg/trends/mlo.html

Problem

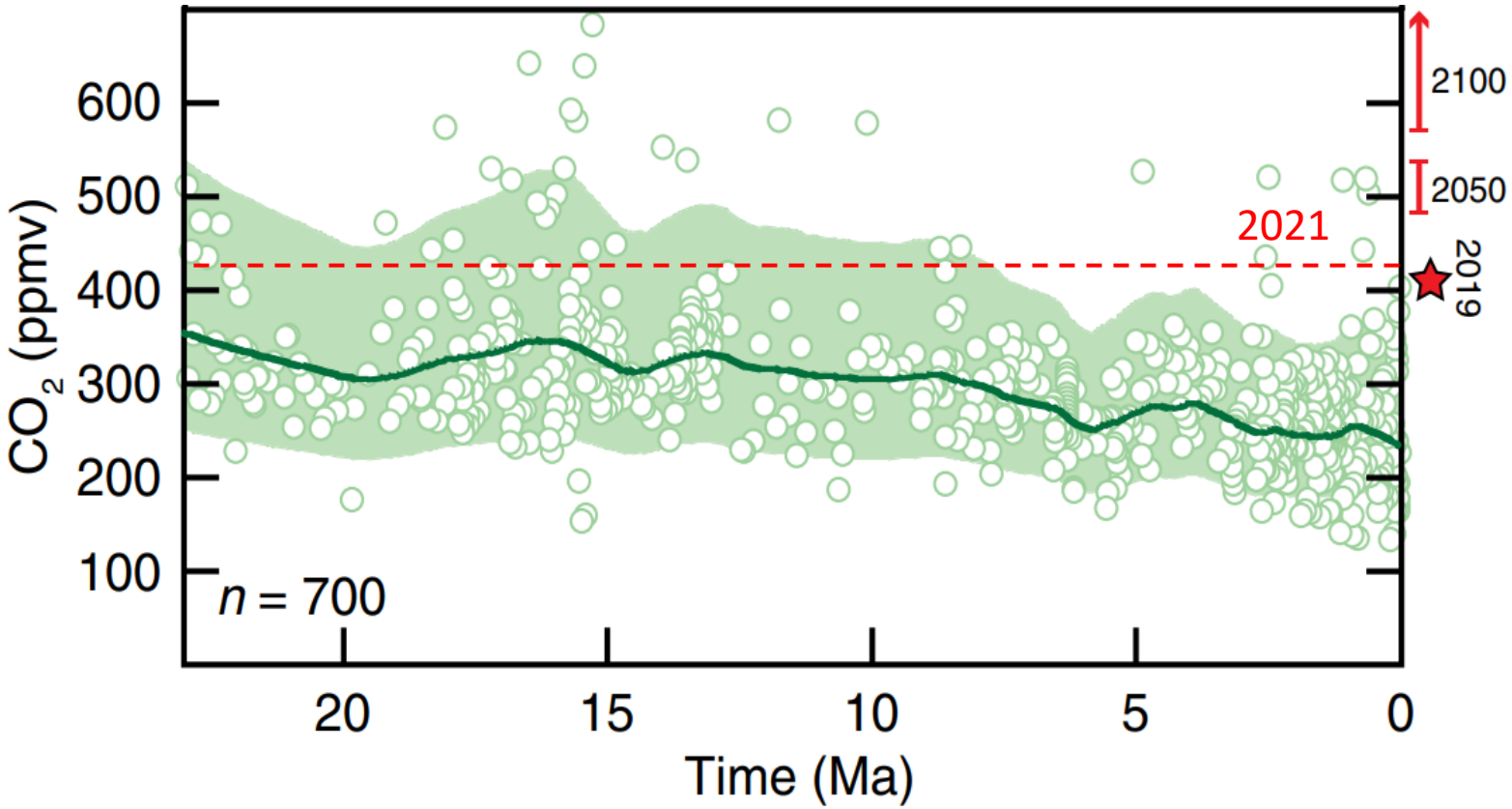
…highest in 800 thousand years



Problem

Vlinder

...perhaps even in 23 million years

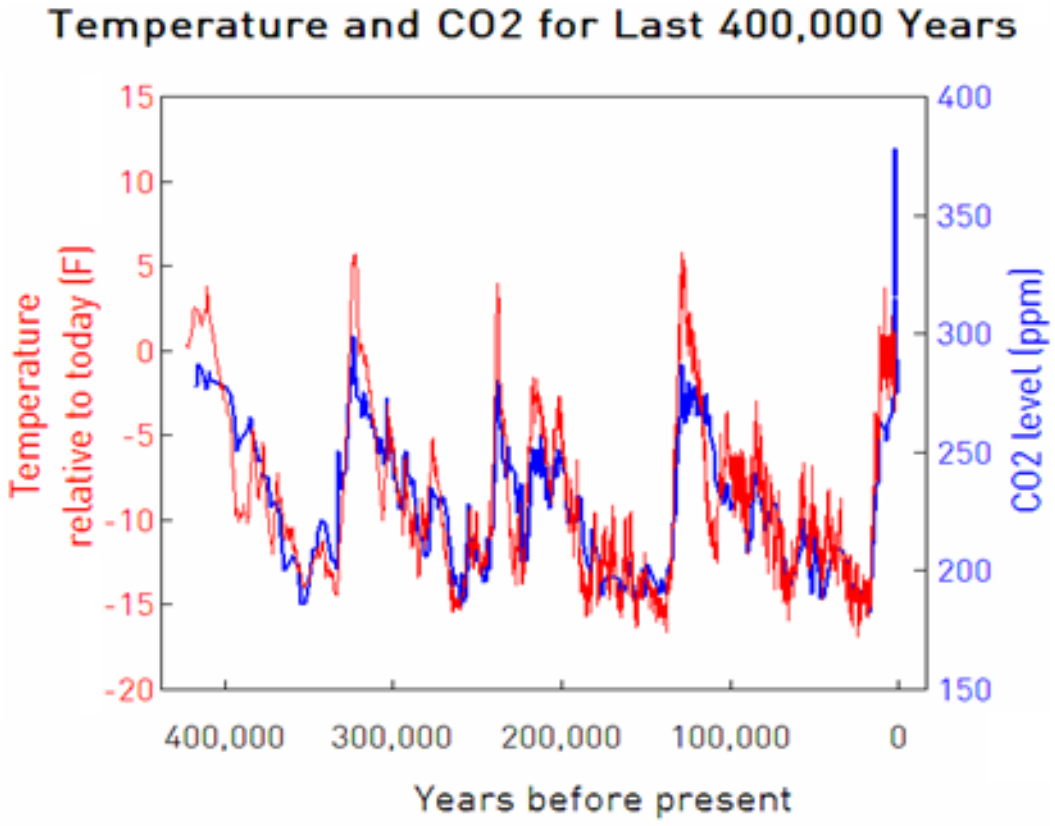


https://pubs.geoscienceworld.org/gsa/geology/article/doi/10.1130/G47681.1/586769/A-23-m-y-record-of-low-atmospheric-CO2

Problem

Vlinder

CO2 and Earth temperature change in cycles

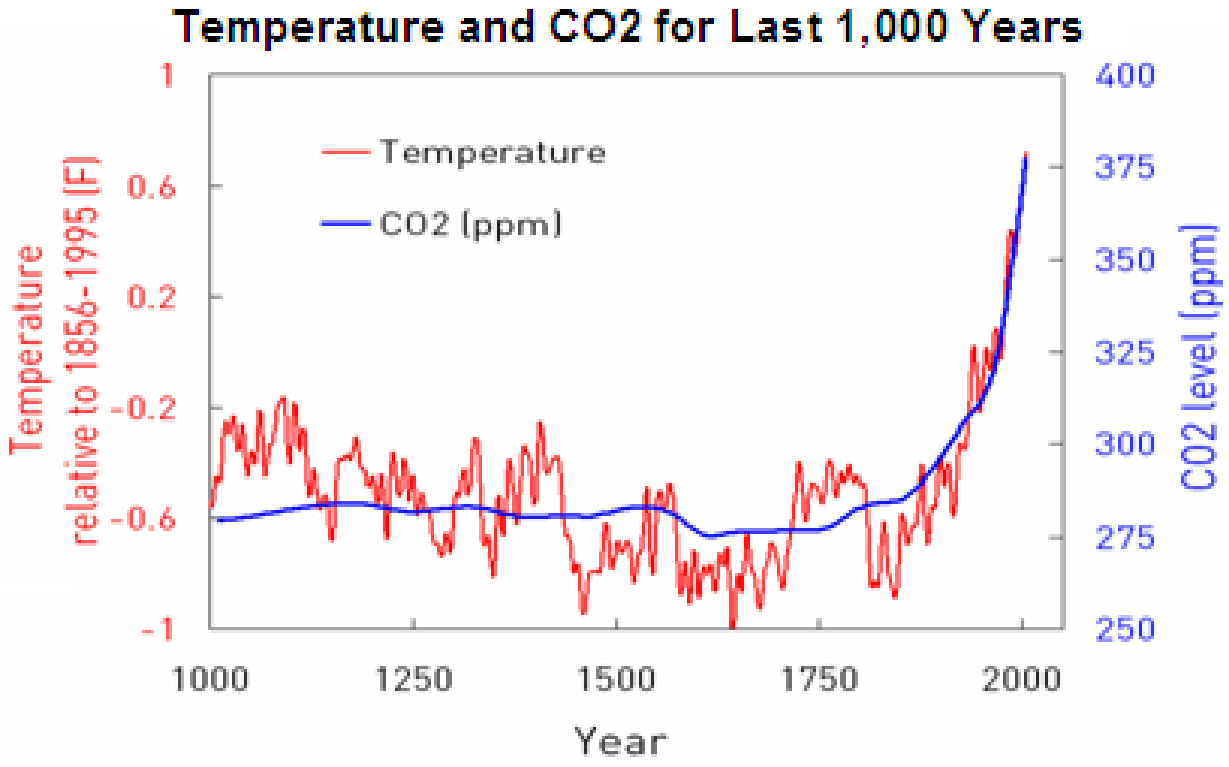


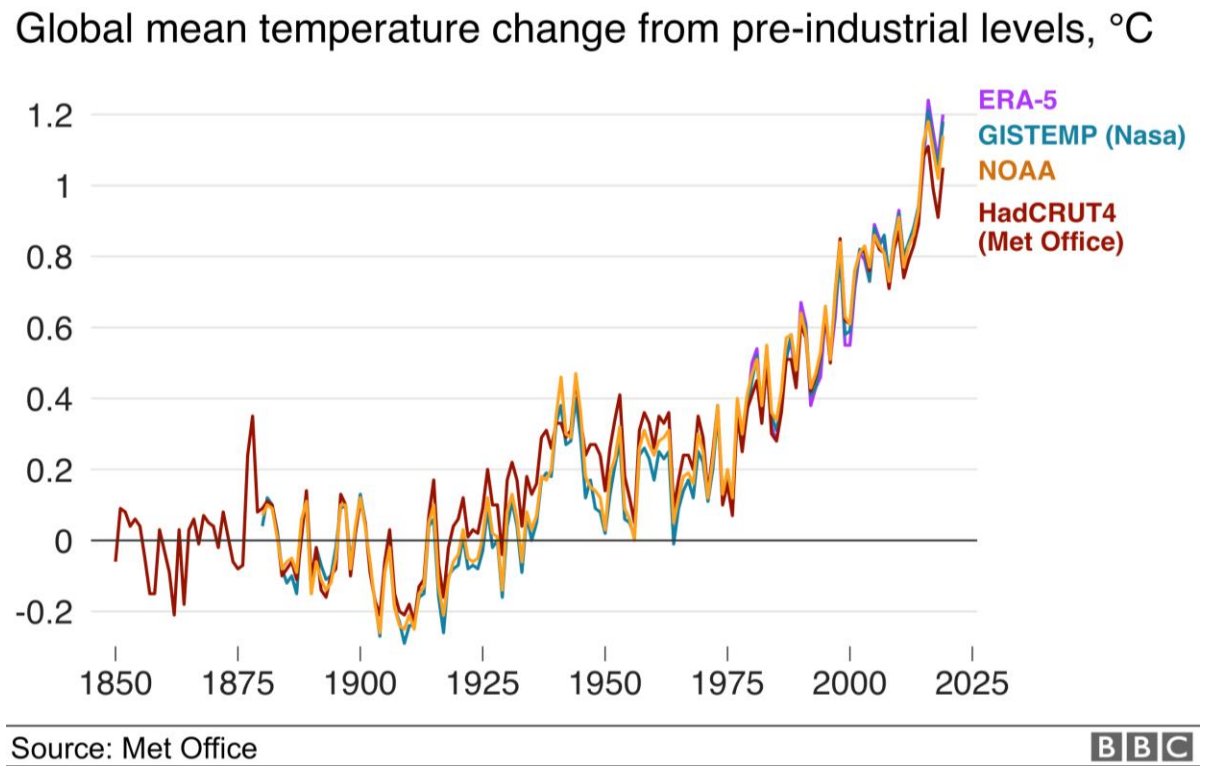
https://blogs.edf.org/climate411/2007/06/29/human_cause-3/

Problem

Vlinder

Rising CO2 causes Earth to heat up, +1°C since 80's

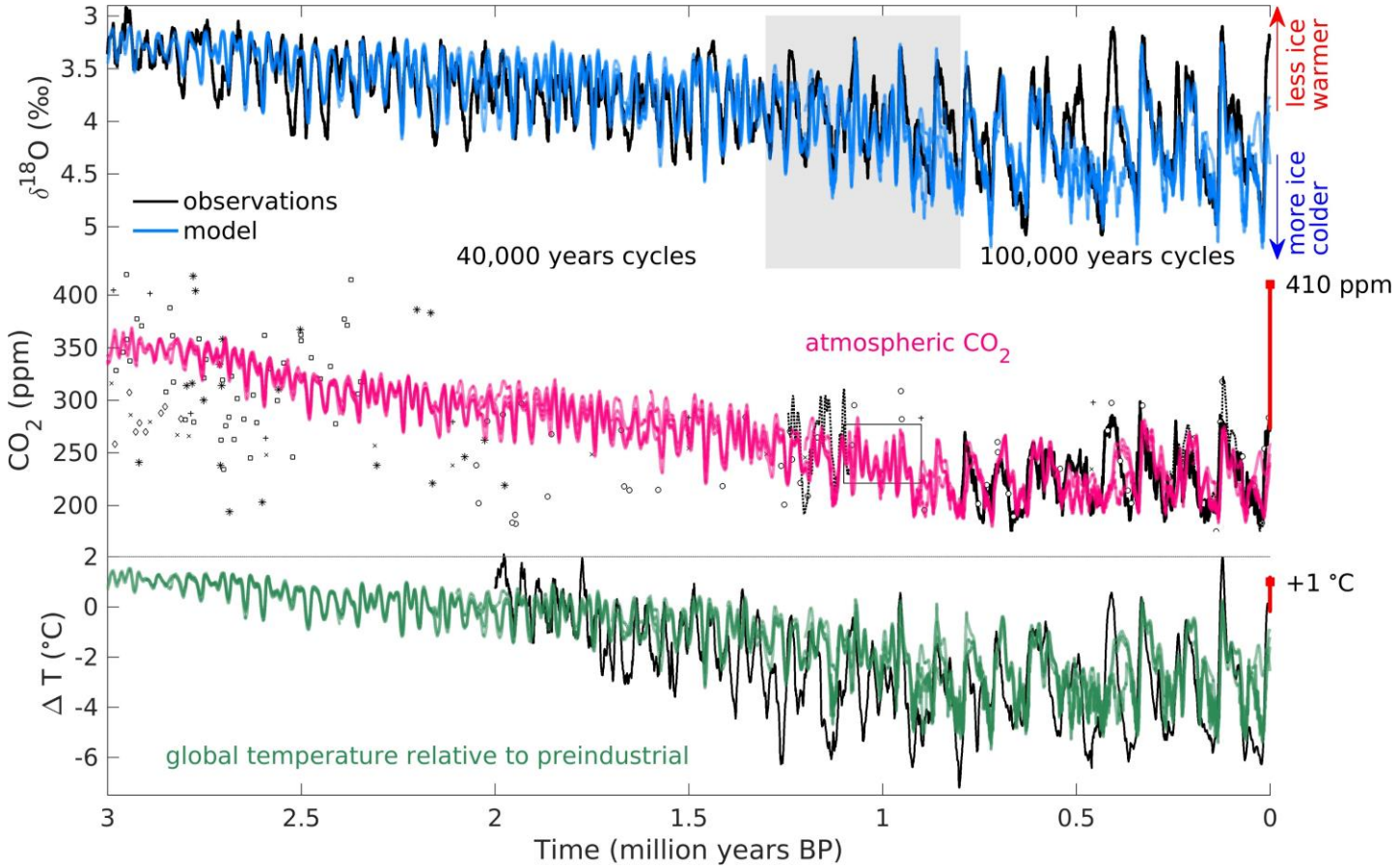




Problem

Vlinder

Climate models suggest that 2x CO2 concentration leads to +3°C

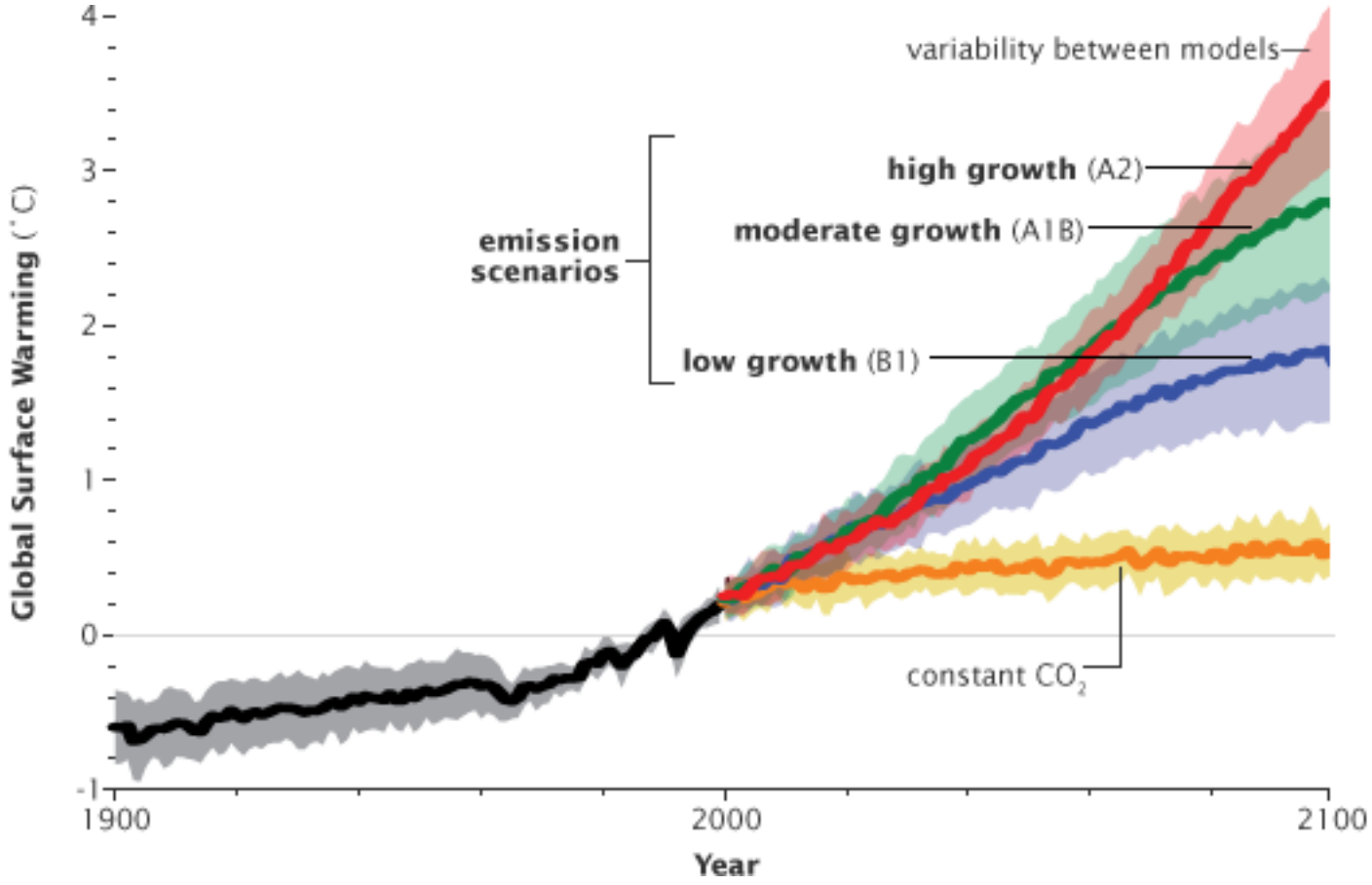


https://www.realclimate.org/index.php/archives/2019/04/first-successful-model-simulation-of-the-past-3-million-years-of-climate-change/

Problem

Vlinder

Business-as-usual scenario predicts +3-4° C end of century



https://earthobservatory.nasa.gov/features/GlobalWarming/page5.php


轮胎

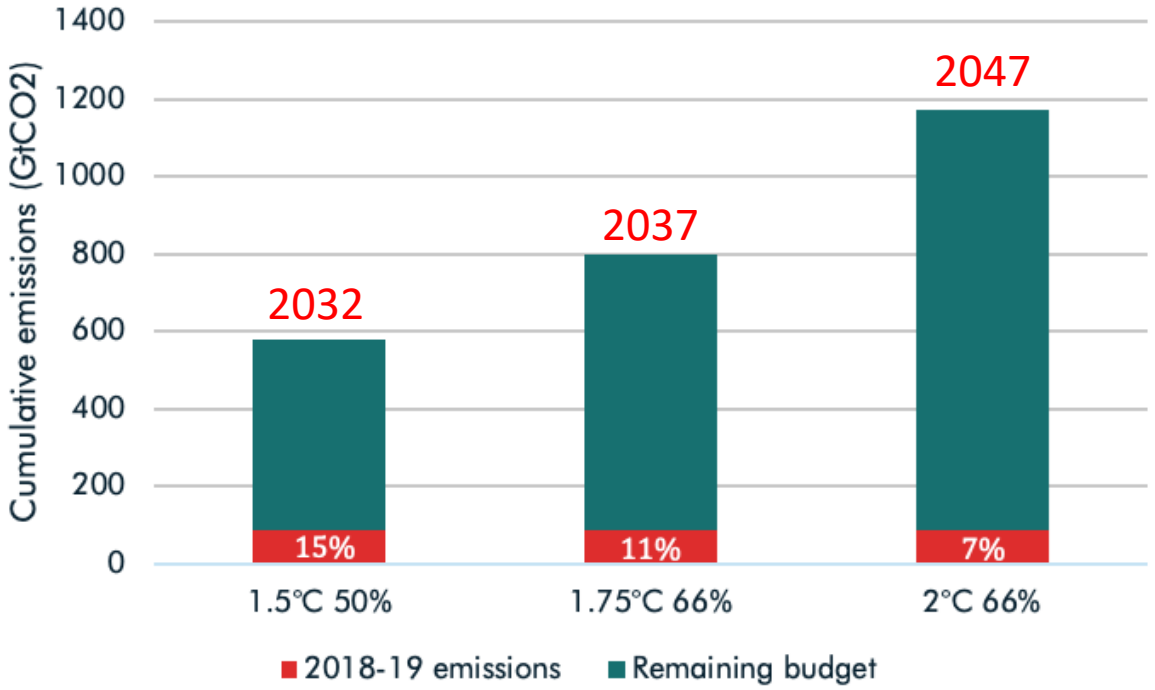
Problem

What else might happen?

Source: World Resources Institute, adapted from the IPCC and others

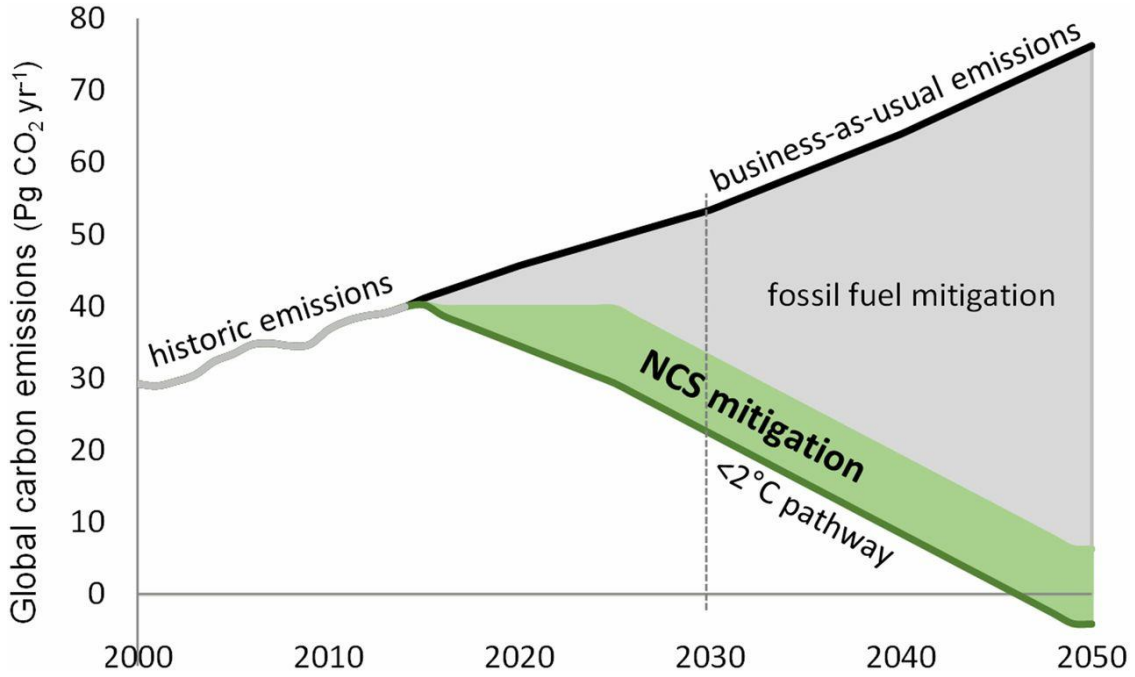
Carbon budget

In order to stay within +1.5°C, we must remain within a 570 Gt CO2 cumulative 2018–2050 carbon budget



Net zero

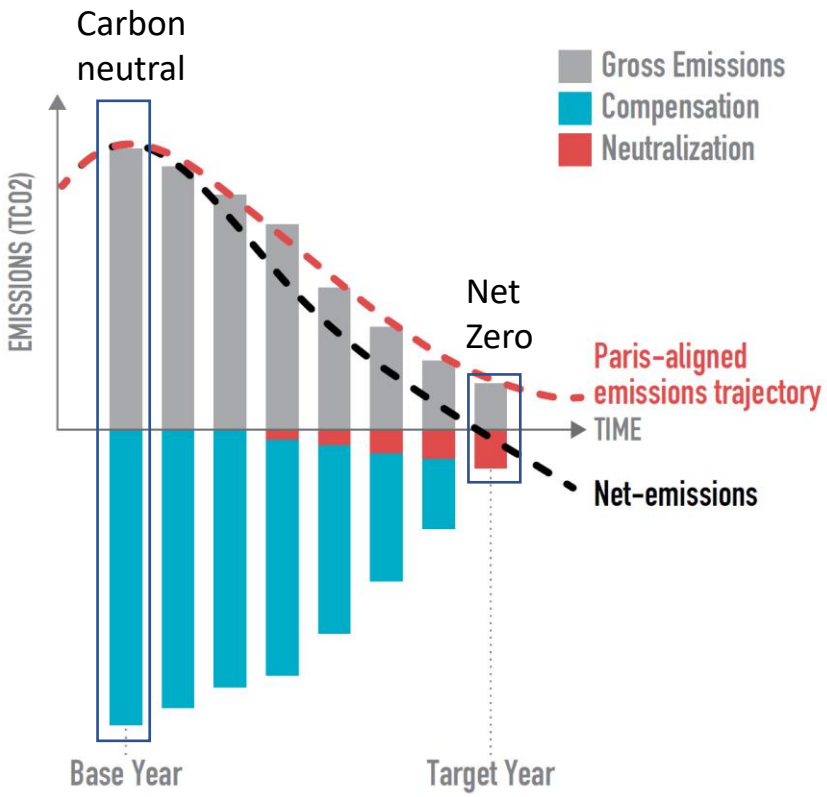
This goal requires net GHG emissions to fall by 23 Gt by 2030.
At least 2 Gt will likely need to come from sequestration.

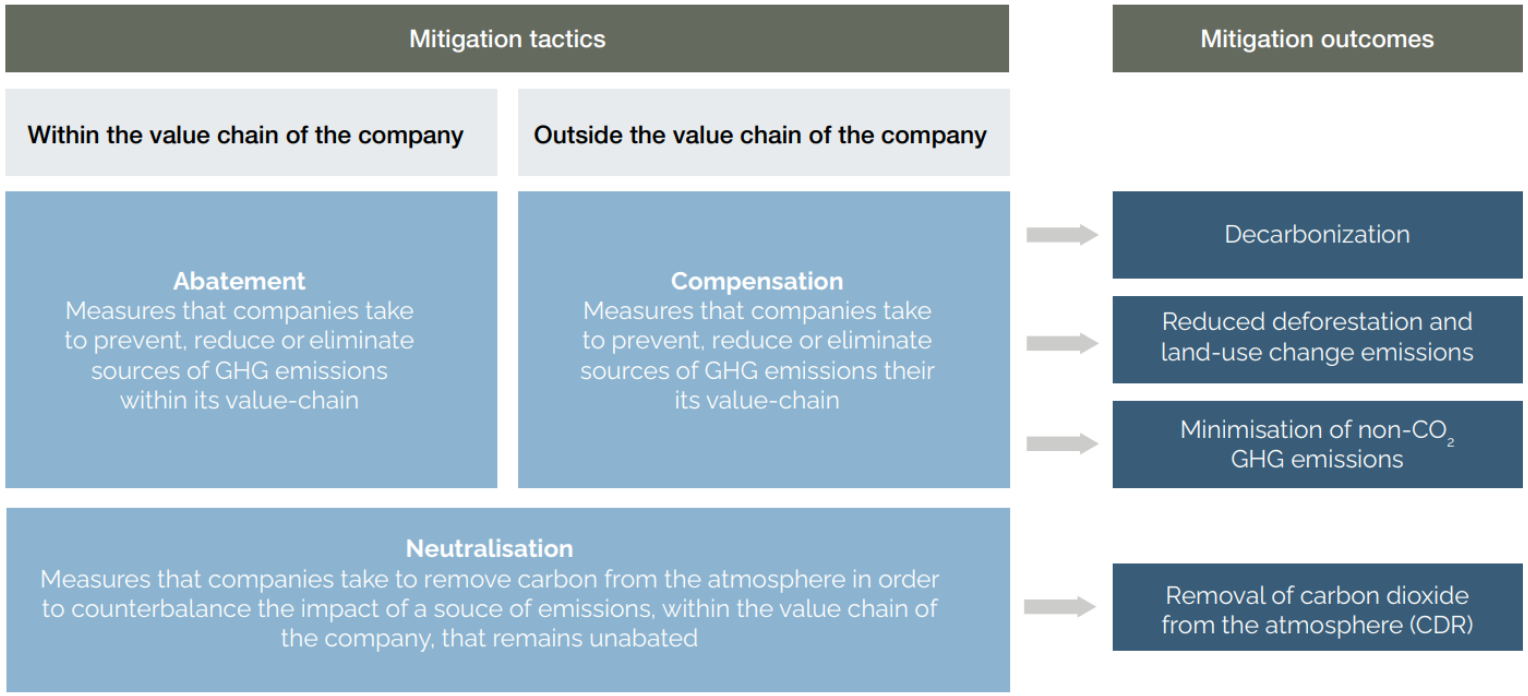


https://www.pnas.org/content/114/44/11645

Net zero

Over 1000 companies representing 20% of global market capitalization (over $20 trillion) committed to Net Zero



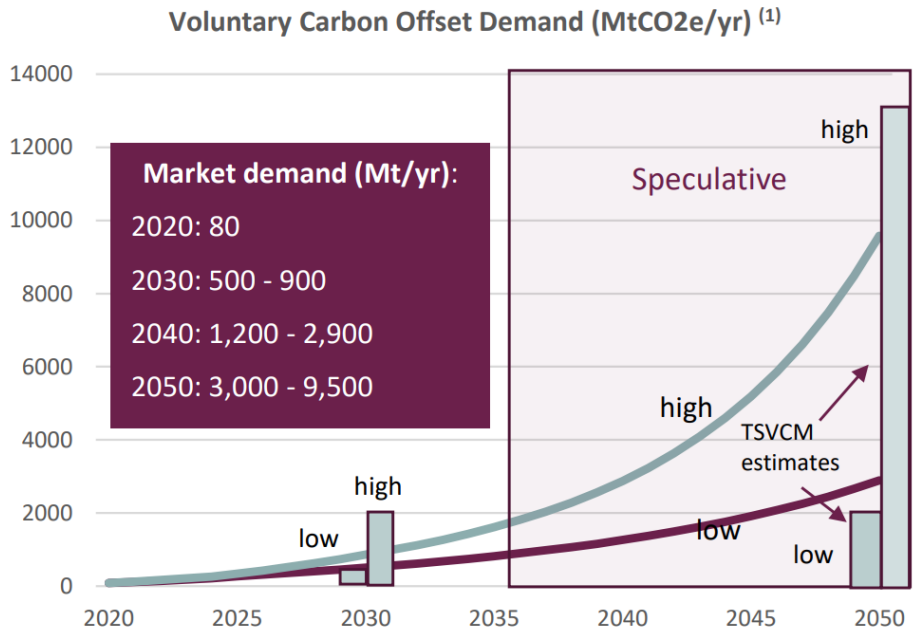


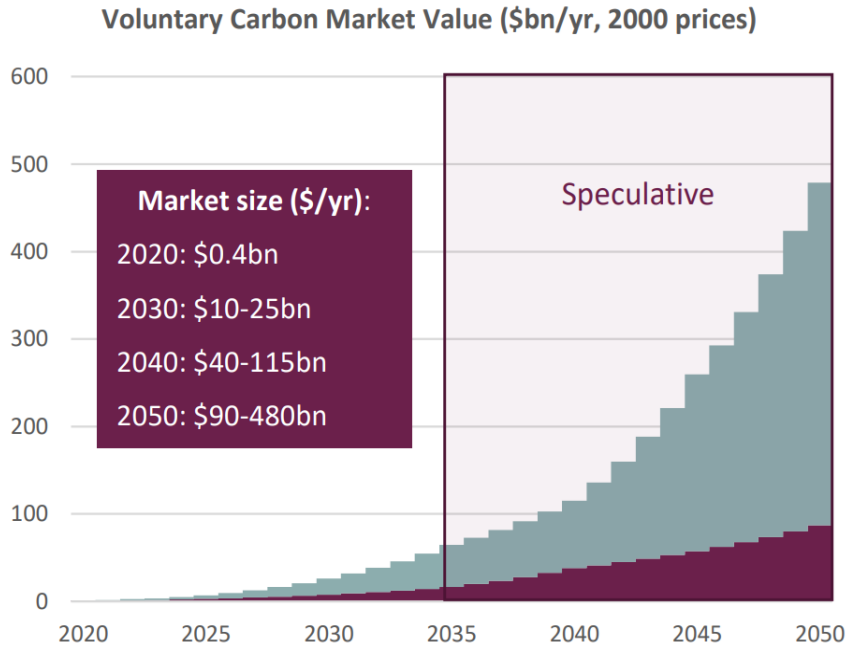
https://sciencebasedtargets.org/resources/legacy/2020/09/foundations-for-net-zero-full-paper.pdf

Carbon market

Achieving 2 Gt of emissions sequestration and removal by 2030 requires a 15-fold scale-up of voluntary offsetting in 2030 versus 2019, assuming carbon credits are used to finance all of these actions.

https://www.iif.com/Portals/1/Files/TSVCM_Report.pdf





https://trove-research.com/wp-content/uploads/2020/12/Global-Carbon-Offset-Supply-4-Dec.pdf

Definitions

Vlinder

Carbon credits, or *Verified emission reductions* (VERs), or *Verified Carbon Units* (VCUs) are essentially a reduction in greenhouse gas emissions (GHGs) from a project that is independently audited (i.e., verified) against a third-party certification standard.

Each verified emission reduction represents one metric tonne of carbon dioxide equivalent emissions (*mtCO2e*).

Verified Carbon Standard

Gold Standard®
Climate Security & Sustainable Development

PLAN VIVO
For nature, climate and communities

American Carbon Registry

1 tCO2 = ?

Climate

CLIMATE CONSCIOUS CHANGES

BUSINESS AS USUAL

	KGCO2E/YEAR		KGCO2E/YEAR	
Drink only tap water	0		234	Drink only bottled water
A weekend newspaper - recycled	94		213	A weekend newspaper - to landfill
Buy produce - local + seasonal	2		42	Buy produce - air-freight long-haul
Take a shower	183		949	Take a bath
Dishwasher at 55°C	80		103	Dishwasher at 65°C
Take a train or bus	1'800		8'520	Drive by car
Wash at 30°C - dry on the line	62		250	Wash at 40°C - tumble dry
Low energy bulb	90		500	100 watt incandescent bulb
Plant-based diet	1'391		2'624	High meat diet >100g/day
From UK to South of France by train	72		2500	From UK to New York by plane

3,773 kgCO2e

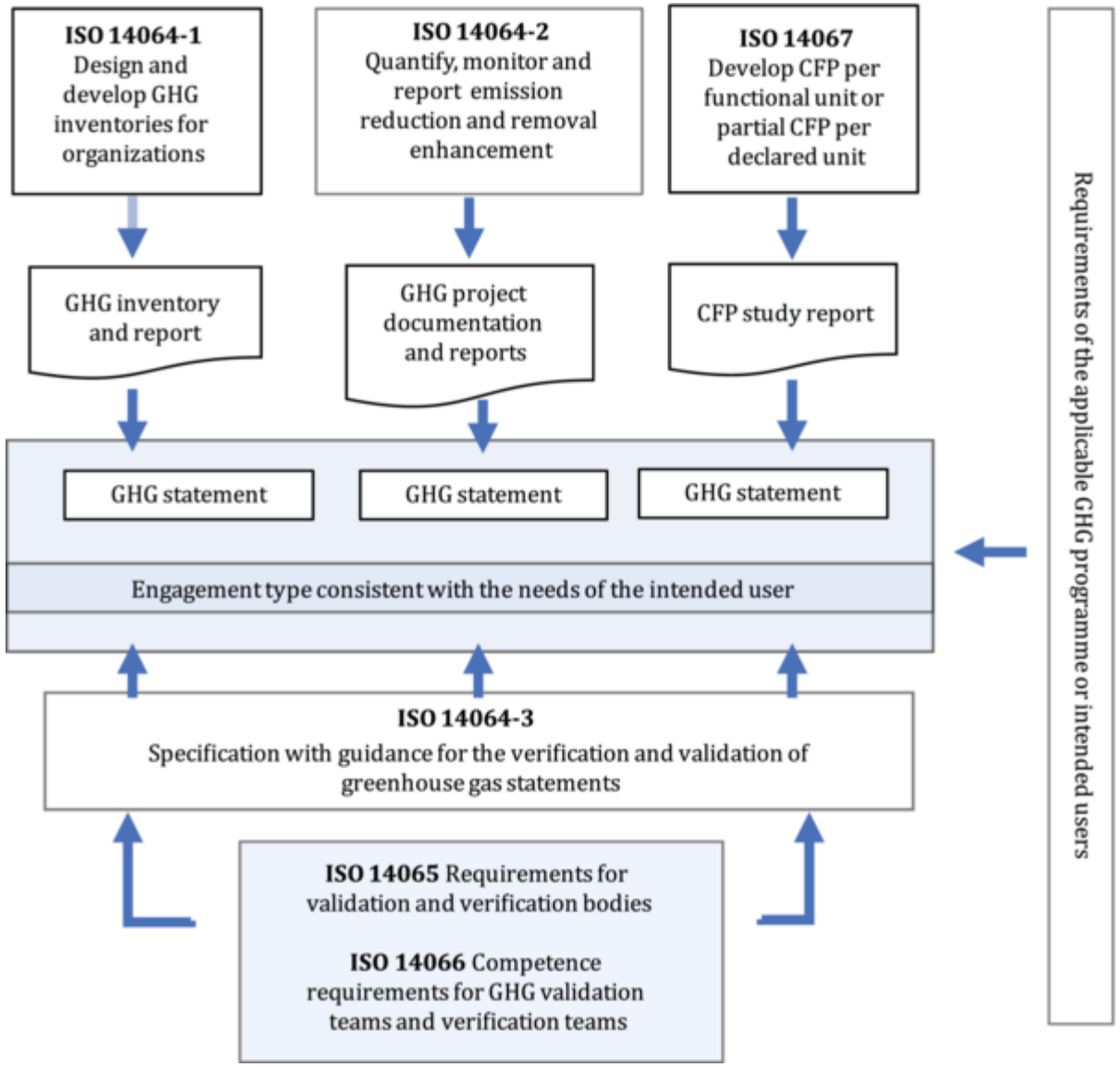
3,8 tCO2e

15,935 kgCO2e

15,9 tCO2e

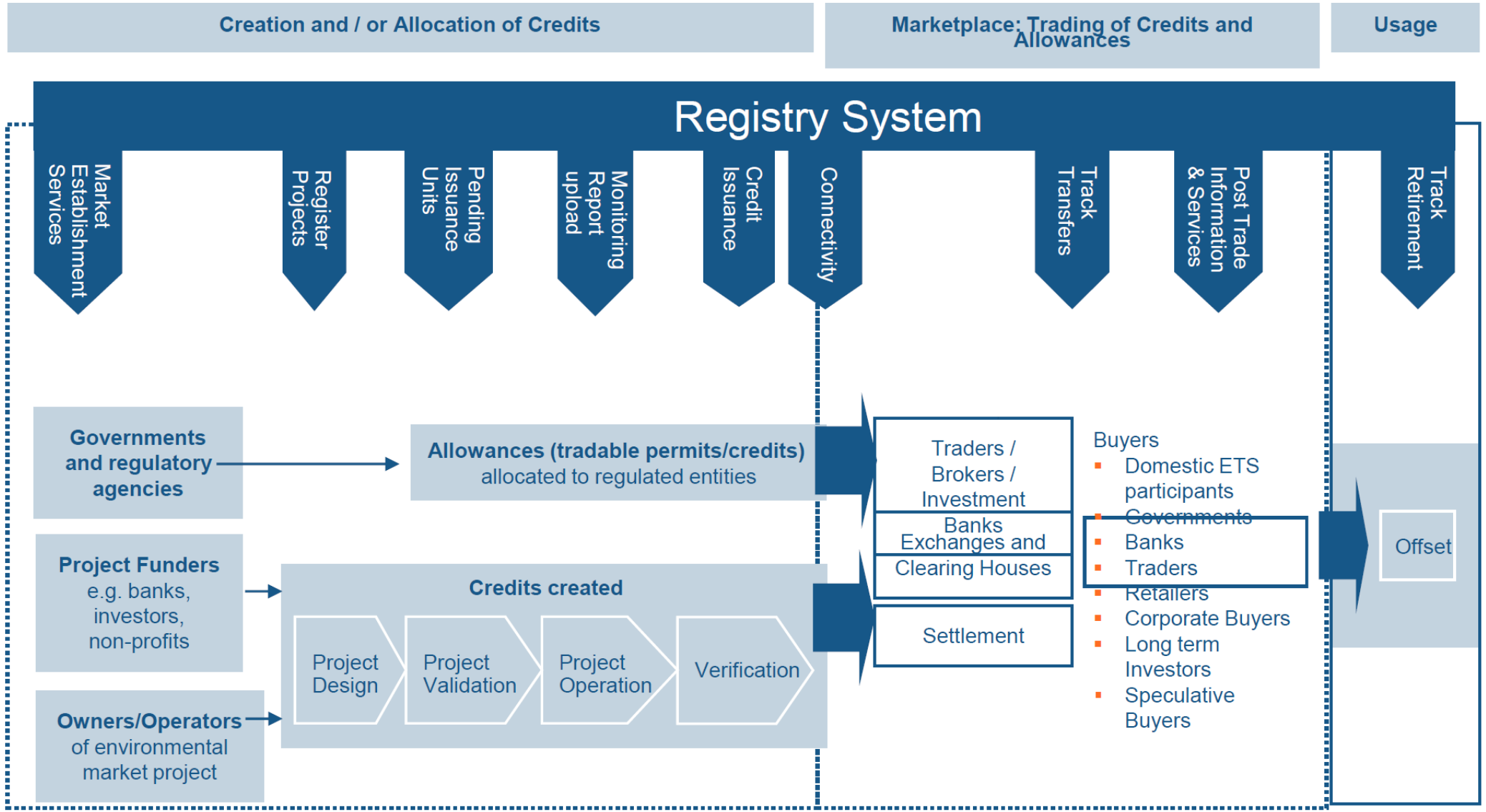
ISO 14060

Family of standards for quantifying, monitoring, reporting and validating greenhouse gas emissions to support a low-carbon economy



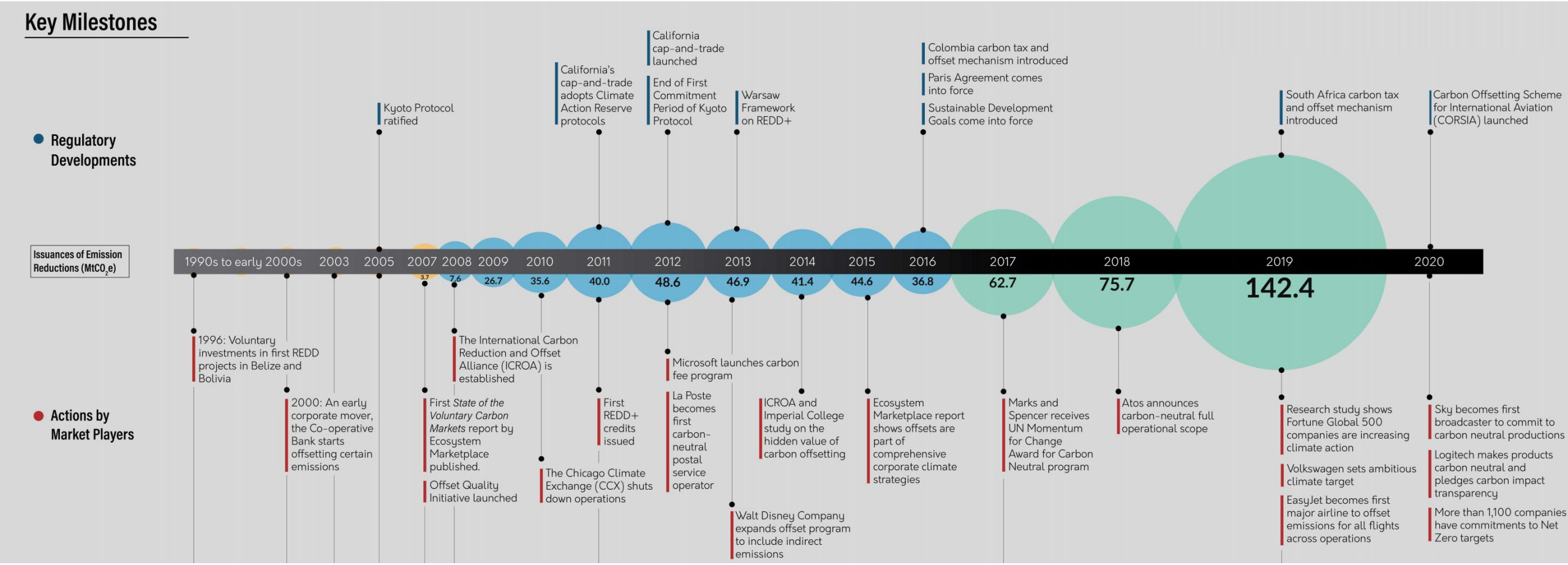
Carbon credit lifecycle

Vlinder



Voluntary carbon market history

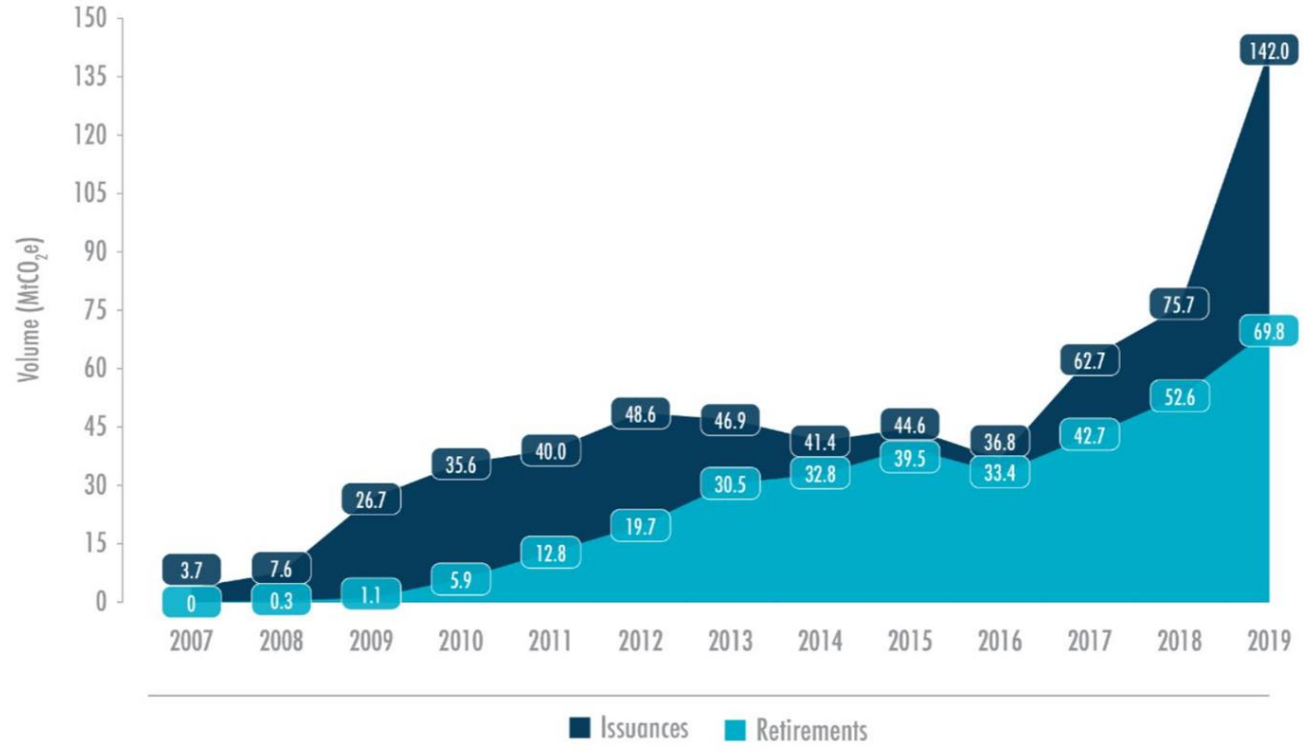
Vlinder



https://verra.org/voluntary-carbon-markets/

Voluntary carbon market metrics

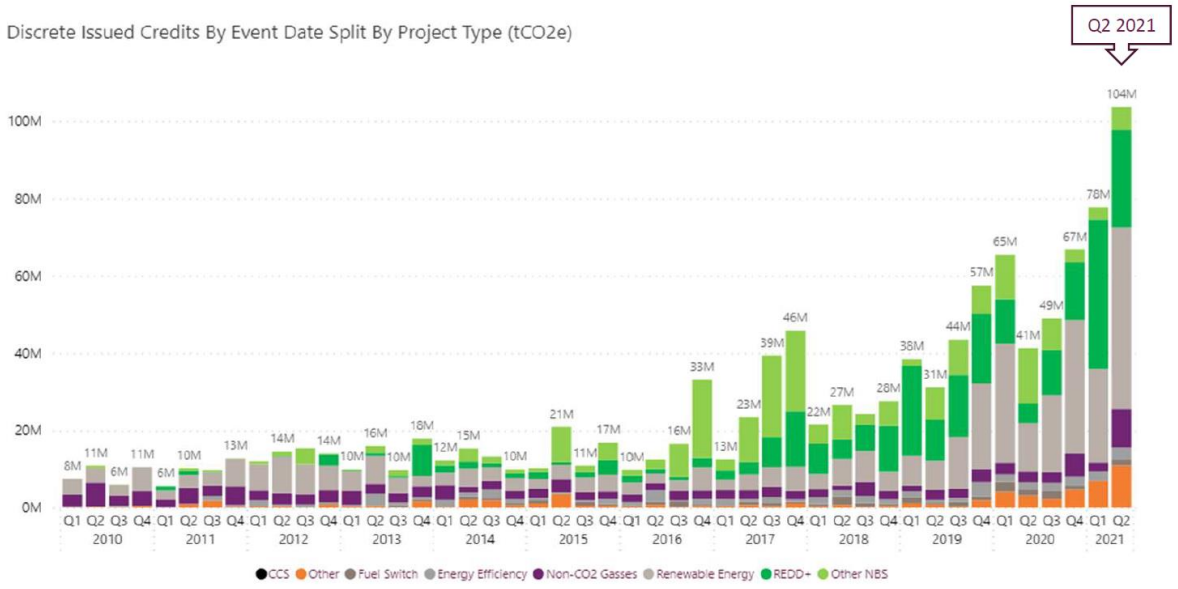
- 142 mln tCO2 issued in 2019 (vs. 8.7 bln tCO2 issued on compliance market)
- 70 mln tCO2 retired in 2019

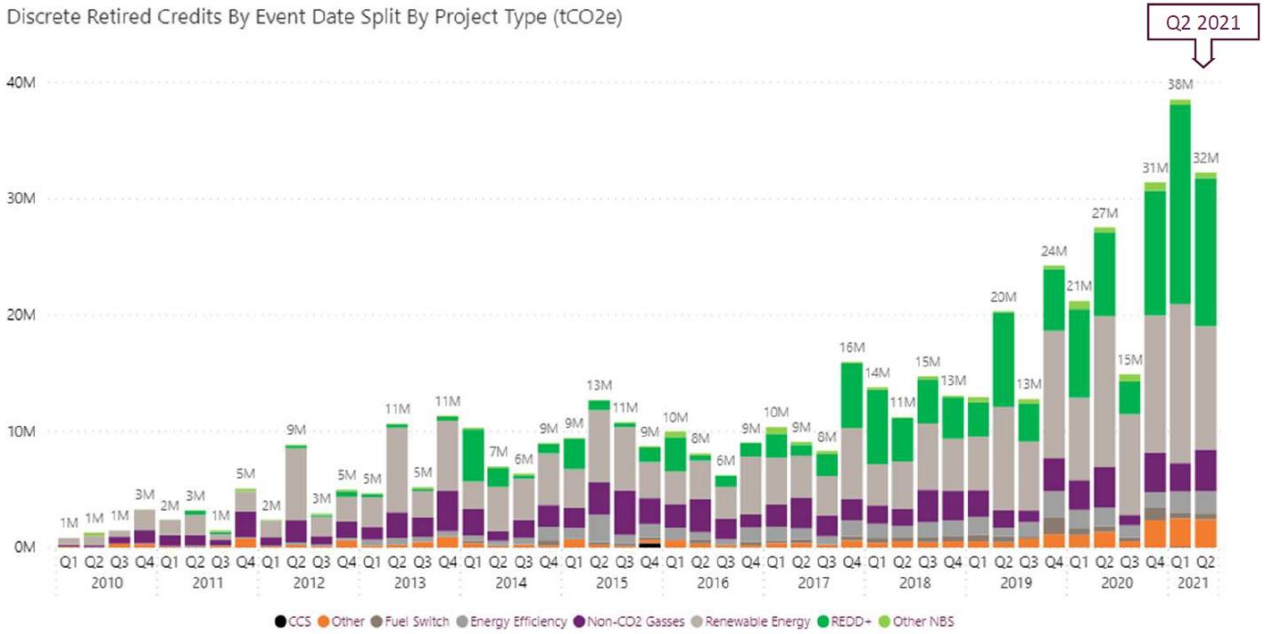


https://www.forest-trends.org/publications/state-of-the-voluntary-carbon-markets-2020-2/

Voluntary carbon market metrics

- 298 mln tCO2 issued in Q3'20-Q2'21
- 116 mln tCO2 retired in Q3'20-Q2'21

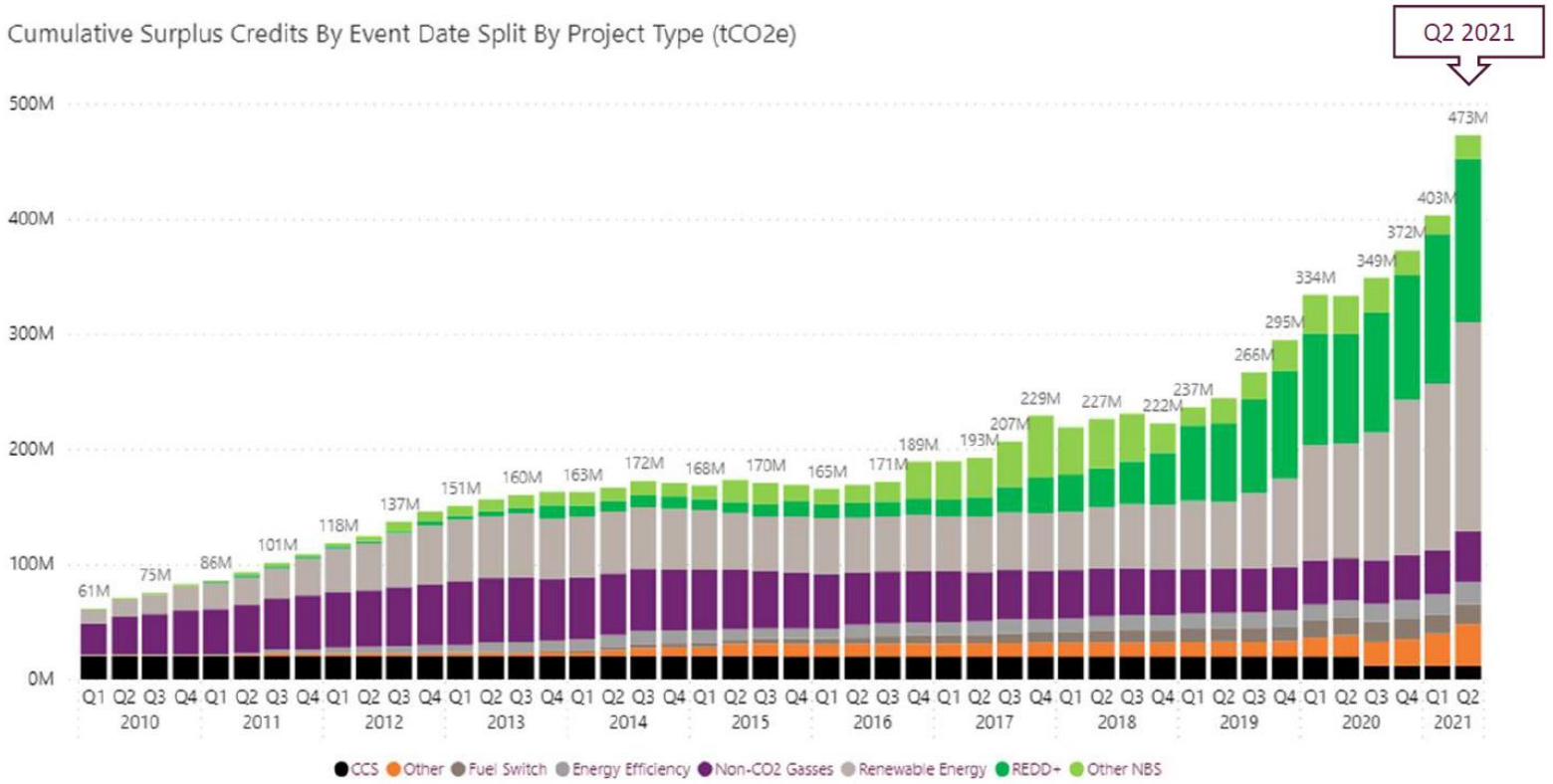




https://trove-research.com/research-and-insight/q2-2021-review-of-voluntary-carbon-market-transactions-july-2021/

Voluntary carbon market metrics

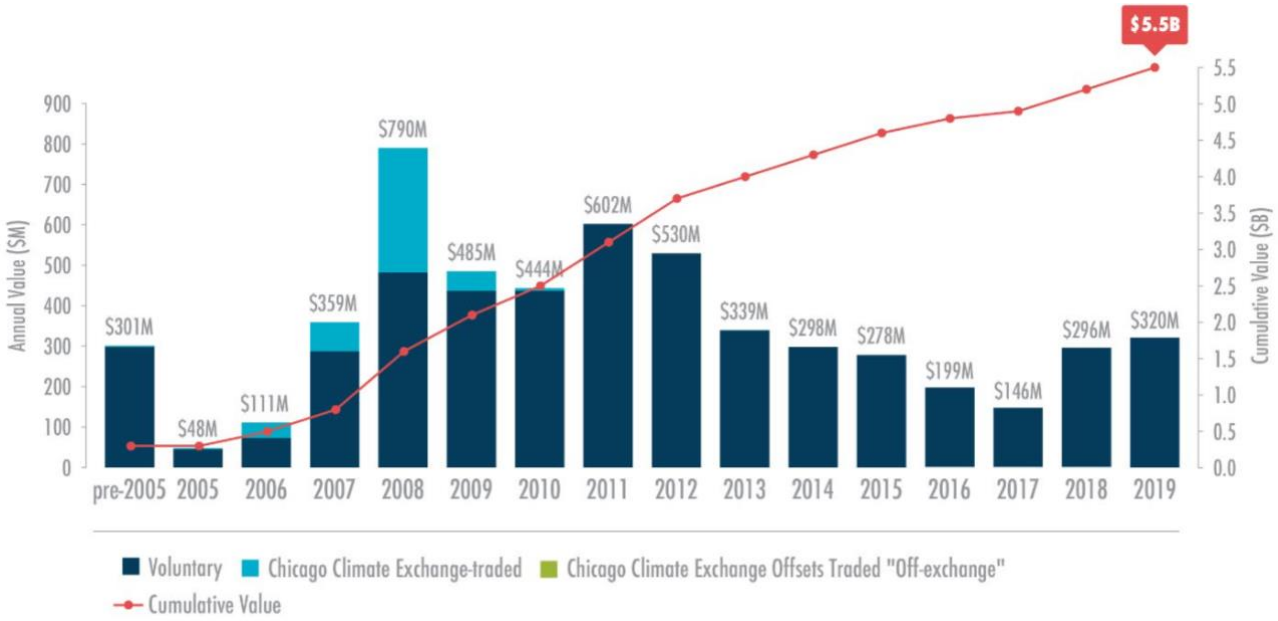
- 473 mln tCO2 market surplus
- 38% are renewable energy credits



https://trove-research.com/research-and-insight/q2-2021-review-of-voluntary-carbon-market-transactions-july-2021/

Voluntary carbon market metrics

- $320 mln market size in 2019
- $3.1 average price for tCO2 in 2019



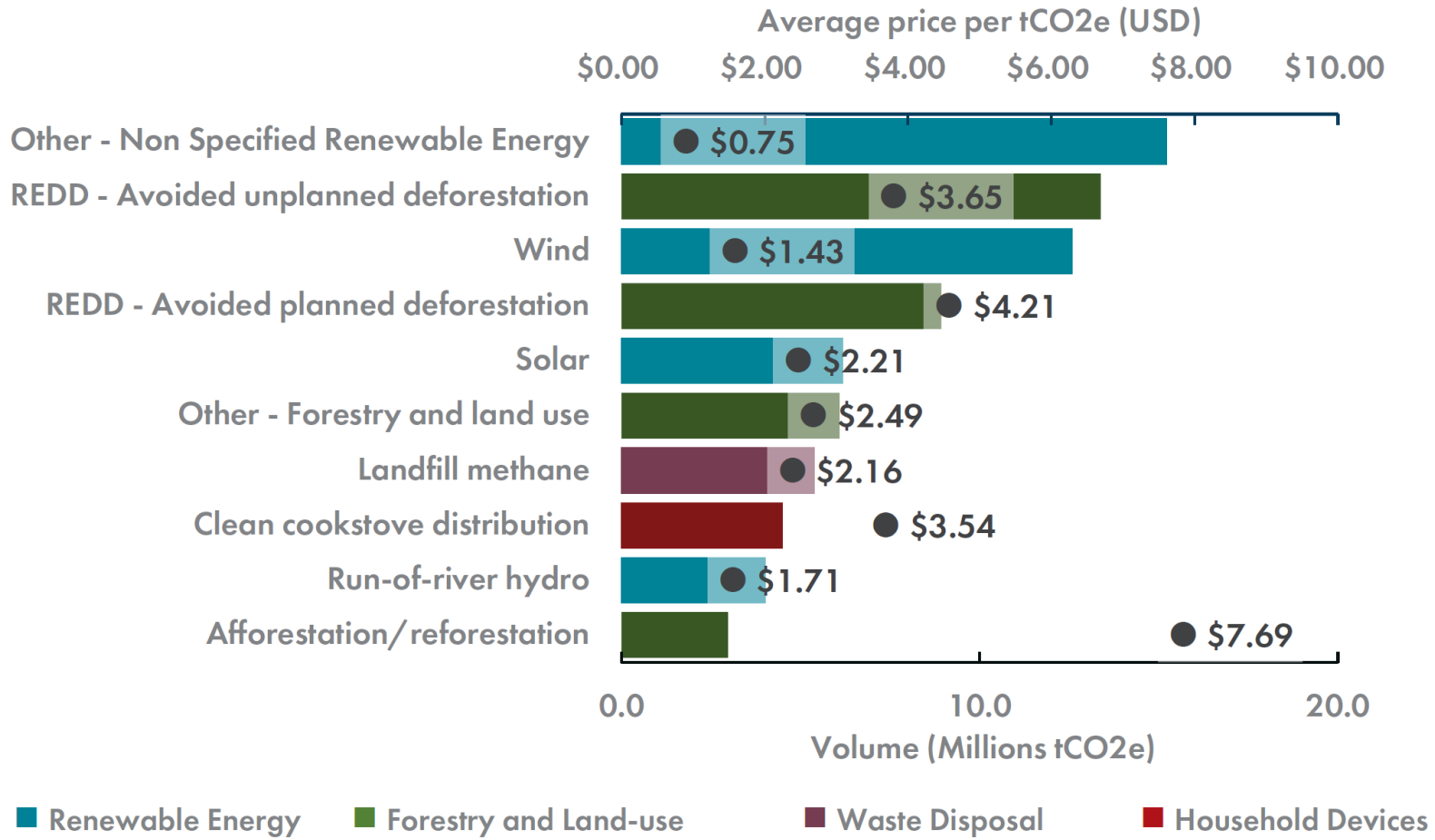
	VOLUME $MtCO_2e$	AVERAGE PRICE	VALUE
RENEWABLE ENERGY	42.4	$1.4	$60.1 M
FORESTRY AND LAND USE	36.7	$4.3	$159.1 M
WASTE DISPOSAL	7.3	$2.5	$18.0 M
HOUSEHOLD DEVICES	6.4	$3.8	$24.8 M
CHEMICAL PROCESSES / INDUSTRIAL MANUFACTURING	4.1	$1.9	$7.7 M
ENERGY EFFICIENCY / FUEL SWITCHING	3.1	$3.9	$11.9 M
TRANSPORTATION	0.4	$1.7	$0.7 M

https://www.forest-trends.org/publications/state-of-the-voluntary-carbon-markets-2020-2/

Voluntary carbon market metrics

Vlinder

- $0.7 - $7.7 average price range for various project types

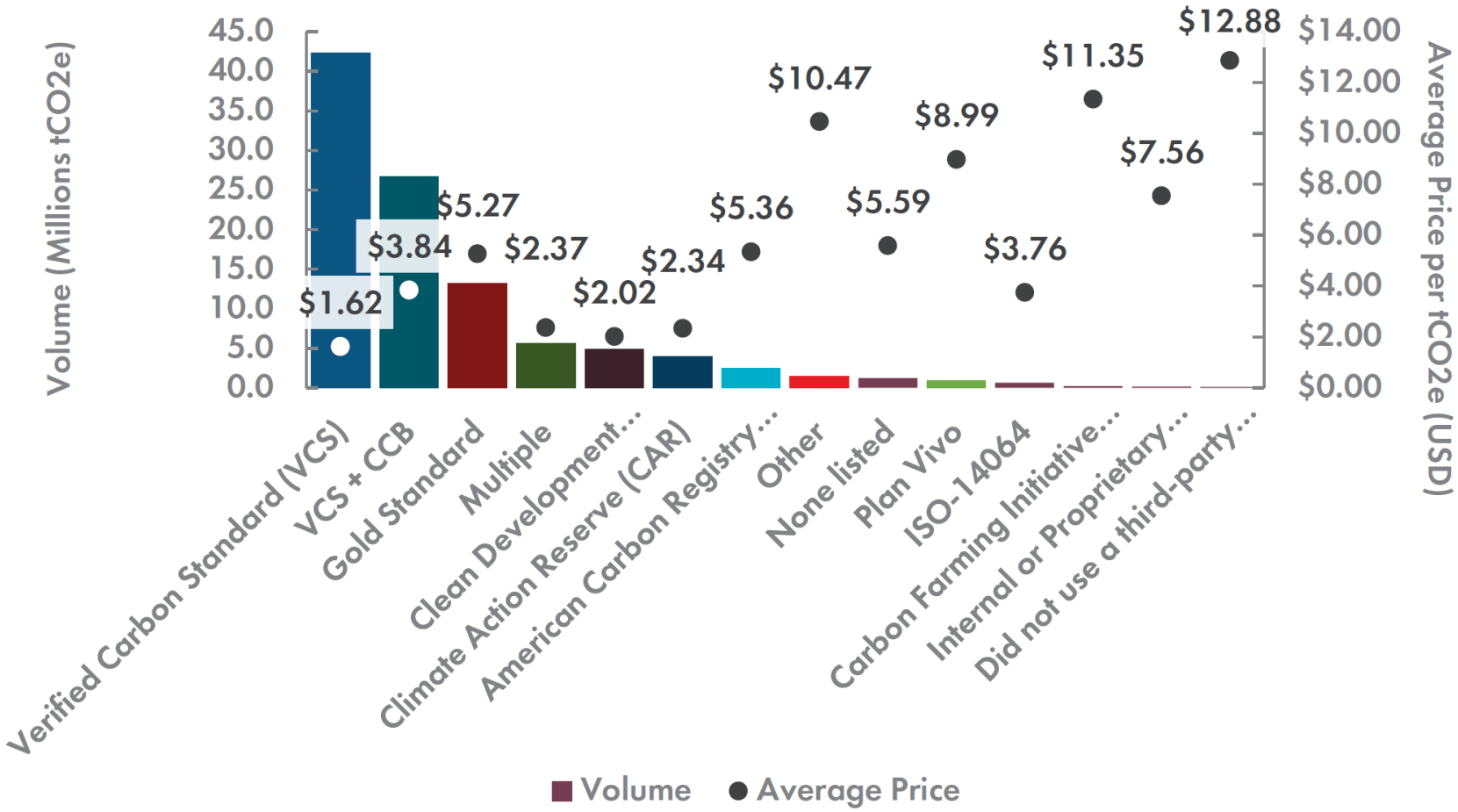


https://www.forest-trends.org/publications/state-of-the-voluntary-carbon-markets-2020-the-only-constant-is-change/

Voluntary carbon market metrics

Vlinder

- $1.6 - $12 averge price range for various registries



https://www.forest-trends.org/publications/state-of-the-voluntary-carbon-markets-2020-the-only-constant-is-change/

Voluntary carbon project types

Vlinder

	Avoidance			Removal		
	Renewable energy	**Fuel switching**	**Conservation**	**Reforestation**	**Biochar**	**Direct air capture**
Examples	*Windmills*	*Cookstoves*	*REDD+*	*Blue carbon*	*Puro.earth*	*Climeworks*
Additionality	+/-	+/-	+/-	+	+	+
Permanence	+/-	+/-	+/-	>20 yrs	>100 yrs	>1000 yrs
Social & Biodiversity	-	+/-	+	++	-	-
Price	$1-2	$3-4	$3-7	$7-30	$100-180	$800-1000

Verra

- 7 standards & programs
- Program Rules:
  - Requirements
  - Procedural
  - Templates
  - Guidance

https://verra.org/project/vcs-program/rules-and-requirements/

Verra

Standard

- Guiding principles
- High-level requirements
- Processes to follow

Independent Assessment

- Accreditation of auditors
- Training of auditors
- Oversight

Accounting Methodologies

- Establishing a baseline
- Monitoring requirements
- Enabling various interventions

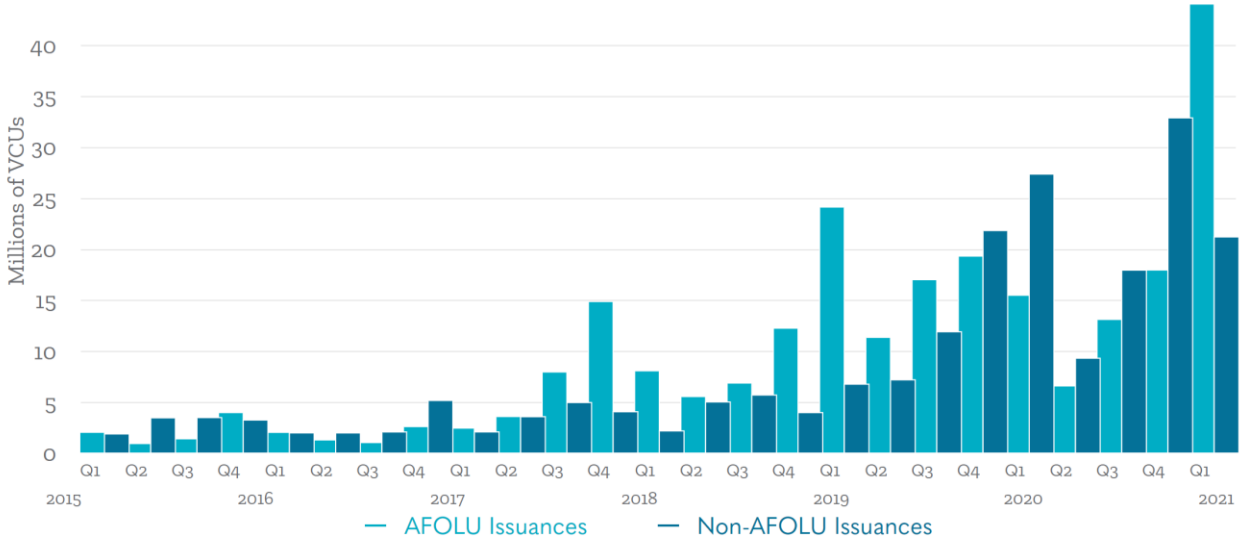
Registry

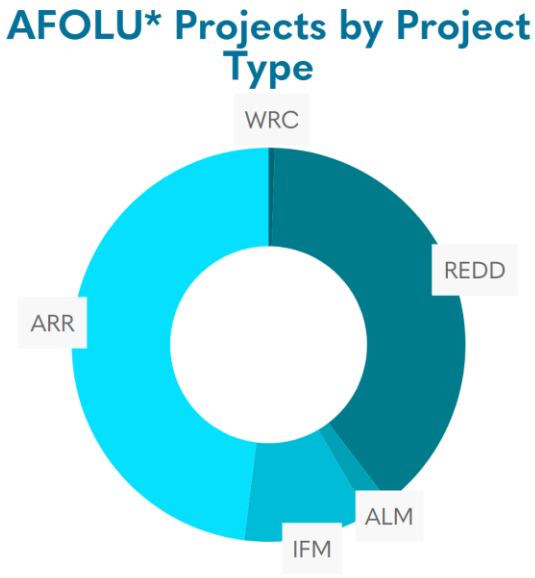
- Listing of program information
- Avoid double counting
- Transparency of results

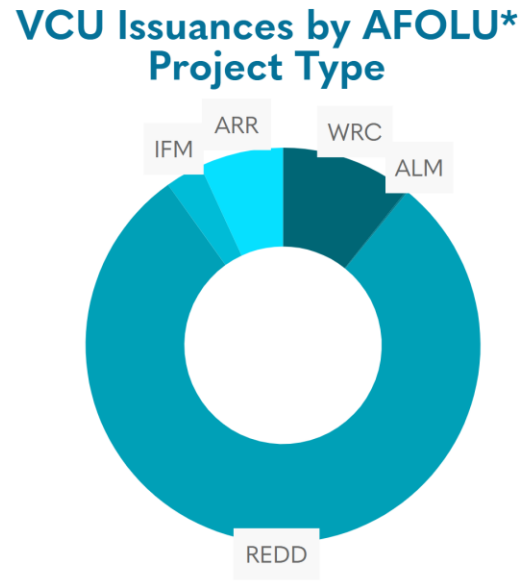
https://verra.org/about-verra/what-we-do/

Verra

- 1697 registered projects (202 AFOLU)
- 606 mln VCUs issued (43% AFOLU)
- 340 mln VCUs retired (37% AFOLU)







Puro.earth

- Biochar, Wooden building elements
- 14 suppliers (145 in the pipeline)
- 74 thousand CO2 removed
- 4’000 clients
- Acquired by NASDAQ in 2021

Nordgau Carbon. Biochar, SE Germany — 95,00 € / CORC

Nordgau Carbon

Nordgau Carbon is a privately owned biochar producer located in the village of Wernberg-Köblitz in South-Eastern Germany. They use untreated wood chips from local PEFC-certified forestry operations to produce high-quality biochar that contains 89% carbon. Each metric ton of sequesters 2,8 tons of CO...

Germany

Biochar

Over 1000 years

READ MORE

☆Favourite ⇄Compare

Mitigating climate change 1 ton at the time — 105,00 € / CORC

ROGUE BIOCHAR™

Oregon Biochar is a producer located in White City, OR, USA that transforms woody wastes, including forest fire burnt wood and forest fire fuel, into superior biochar products. Based on the O/C and H/C molar ratios, the fixed carbon sequestered in this biochar has a half-life of over 1000 years.

United States

Biochar

Over 1000 years

READ MORE

☆Favourite ⇄Compare

Nordgau Carbon. Biochar, SE Germany

95,00 € / CORC

Carbon Removal Information

Favourite Compare Share More

Biochar Photosynthesis Pyrolysis Biochar

Permanence : Over 1000 years
Status of production : Audited
Unit of product volume : tonne
Embodied carbon in product : 2,8Kg/Kg
Year or years of CORCs issued : 2021

Description

Nordgau Carbon is a privately owned biochar producer located in the village of Wernberg-Köblitz in South-Eastern Germany. Production commenced in April 2020 using untreated wood chips from local PEFC-certified forestry operations. The production facility lies in the heart of the forest region, the average transport distance for the feedstock to the facility is only 15km.

Nordgau's high-quality biochar contains 89% carbon. Each metric ton of sequesters 2,8 tons of CO_2 for centuries. Their biochar enables the responsible farmer to make an essential contribution to climate and environmental protection.

Using the oxygen to carbon ratio, the stability of the carbon can be estimated. Puro.earth and the EBC use the O/C value, 0.4, as an upper threshold, which indicates a half-life of 500 years. Nordgau's laboratory analysis consistently shows a value of 0.024, which is very low, indicating a very high level of stability and, therefore long duration of sequestration.

Nordgau Carbon produces biochar for mixing with manure or compost for use as a soil improvement medium. They are certified by the EBC (European Biochar Certification). The biochar is delivered to customers from the kiln without further treatment other than moisturization.

Nordgau Carbon sells most of its biochar to the local farming industry but also to customers in neighbouring countries. Nordgau Carbon holds the European certificate of sustainably produced biochar (EBC)

Nordgau Carbon

Nordgau Carbon

Nordgau Carbon
Homepage address: http://nordgau-carbon.de/
Phone: +4790837317
Email address: post@accend.no
Contact person: Paul Ferguson
Location: Maierhof 3, 92533 Wernberg-Köblitz, Germany

Arrange a Pre-Purchase Agreement

Facility Audit Statement

puro.earth

Vlinder

Statement No	Date of Issue	Valid to:
FAS - 0004	07.05.2021	06.05.2026*

*This statement is valid until the issue of the new statement but will expire no later than 5 years from the Date of Issue.

Nordgau Carbon GmbH & Co KG
Maierhof 3
92533 Wernberg-Köblitz
ID-Number: PE-70848

Nordgau Carbon

Facility Reg.Number: **643002406801000251**
ID-Number: PE-70848

Statement

Based on the verification process, bio.inspecta AG states that the organization has defined and maintained procedures relevant for the production of CO2 removal. Based on the verification the facility is found compliant with Puro.earth CO2 Removal Marketplace requirements.

Facility Registration Number	CO2 Removal Type	Eligibility of the Production Facility
643002406801000251	**Biochar**	**Eligible**

Frick, 07.05.2021

Ueli Steiner
CEO

Philipp Seitz
Auditor

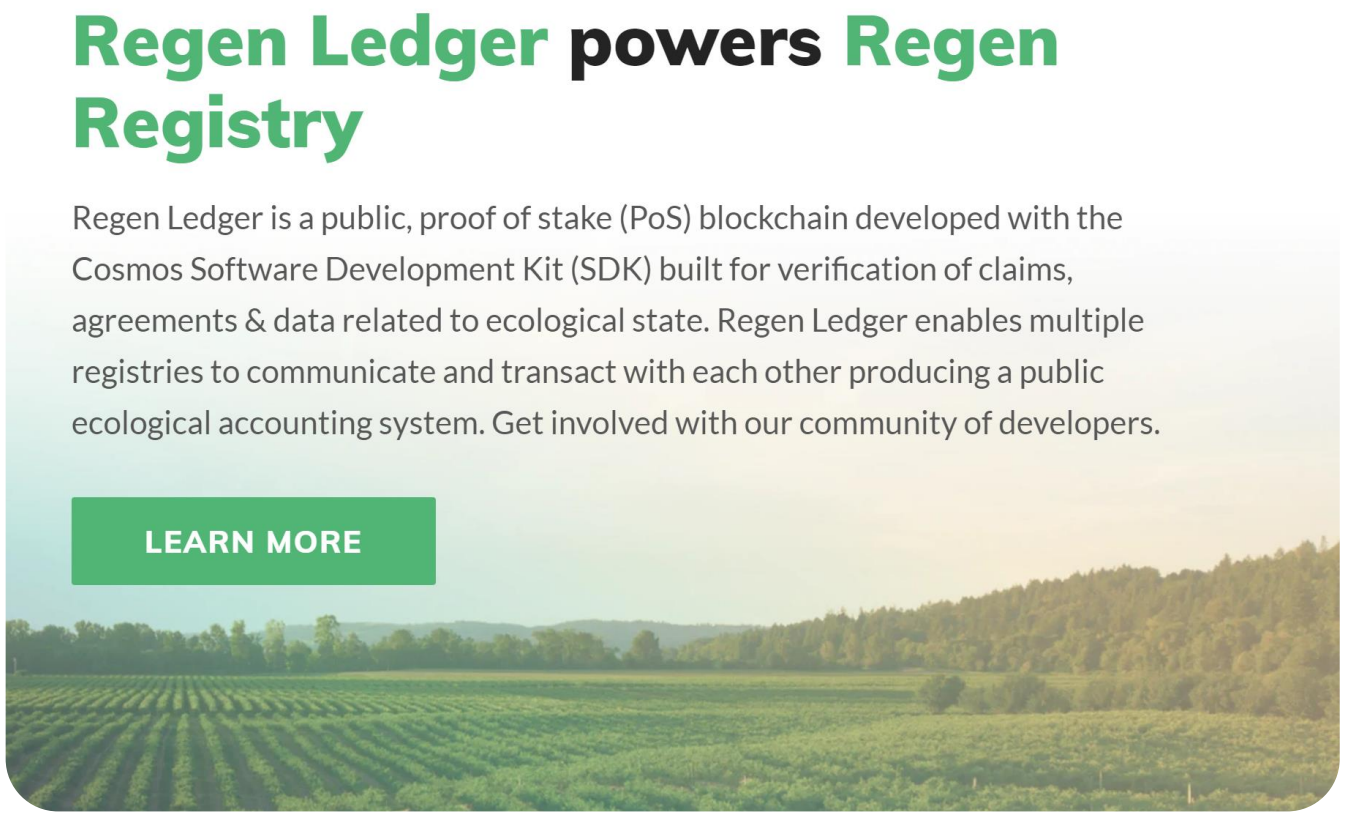
bio inspecta

bio.inspecta AG
Ackerstrasse 117
CH-5070 Frick
Phone +41 (0)62 865 63 00

Regen.network

Vlinder

- Blockchain-native registry
- Focus on soil carbon
- 4 projects
- >100’000 tCO2
- Microsoft purchase (2021)



Project Portfolio

Wilmot

Hernani, New England, New South Wales, Australia | 1,854 ha.

Woodburn

Walcha, New South Wales, Australia | 2,555 ha.

Cavan Station

Yass, New South Wales, Australia | 9,900 ha.

Pillango

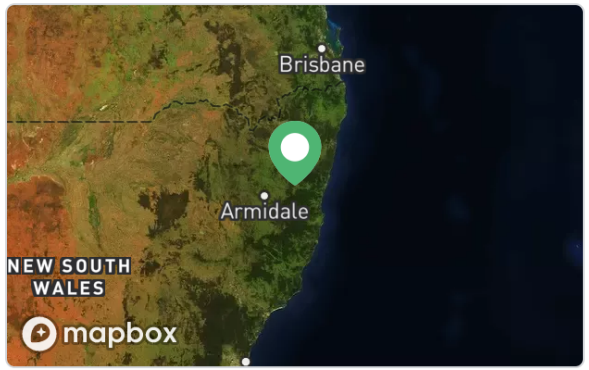
Wallace County, Kansas, United States | 1,101 ha.

Wilmot

Hernani, New England, New South Wales, Australia | 1,854 hectares

CREDIT CLASS: Carbon*Plus* Grasslands

METHODOLOGY: Carbon*Plus* Grasslands



AT A GLANCE

- Increased soil organic carbon concentration to 4.5%.
- Improved co-benefits significantly with Soil Health ranking as excellent, Ecosystem Health as good, and Animal Welfare as excellent.

Story

Wilmot is an extraordinary property high in the New England Tablelands at Ebor, New South Wales, Australia. Set on 1,854ha and at approximately 1,200m above sea level, average annual rainfall of 1,200mm, highly fertile volcanic basalt soils, and complimented by a series of pristine spring fed, year-round natural waterways including five waterfalls, it is quite simply a unique environment for growing cattle.

SDGs

PROJECT DEVELOPER

Impact Ag Partners

Armidale, New South Wales, Australia

Impact Ag Partners is a specialist agricultural asset management firm and

Documentation

NAME OF DOCUMENT	DOCUMENT TYPE	DATE OF UPLOAD		
Issuance Document	Issuance	December 16, 2020	VIEW ON LEDGER	VIEW DOCUMENT
Monitoring Report 2017 (Baseline)	Monitoring	December 14, 2020		VIEW DOCUMENT
Monitoring Report 2018	Monitoring	December 14, 2020		VIEW DOCUMENT
Monitoring Report 2019	Monitoring	December 14, 2020		VIEW DOCUMENT
Project Plan	Project Plan	December 11, 2020		VIEW DOCUMENT
Soil Sampling Data	Monitoring	December 11, 2020		VIEW DOCUMENT

REGEN LEDGER

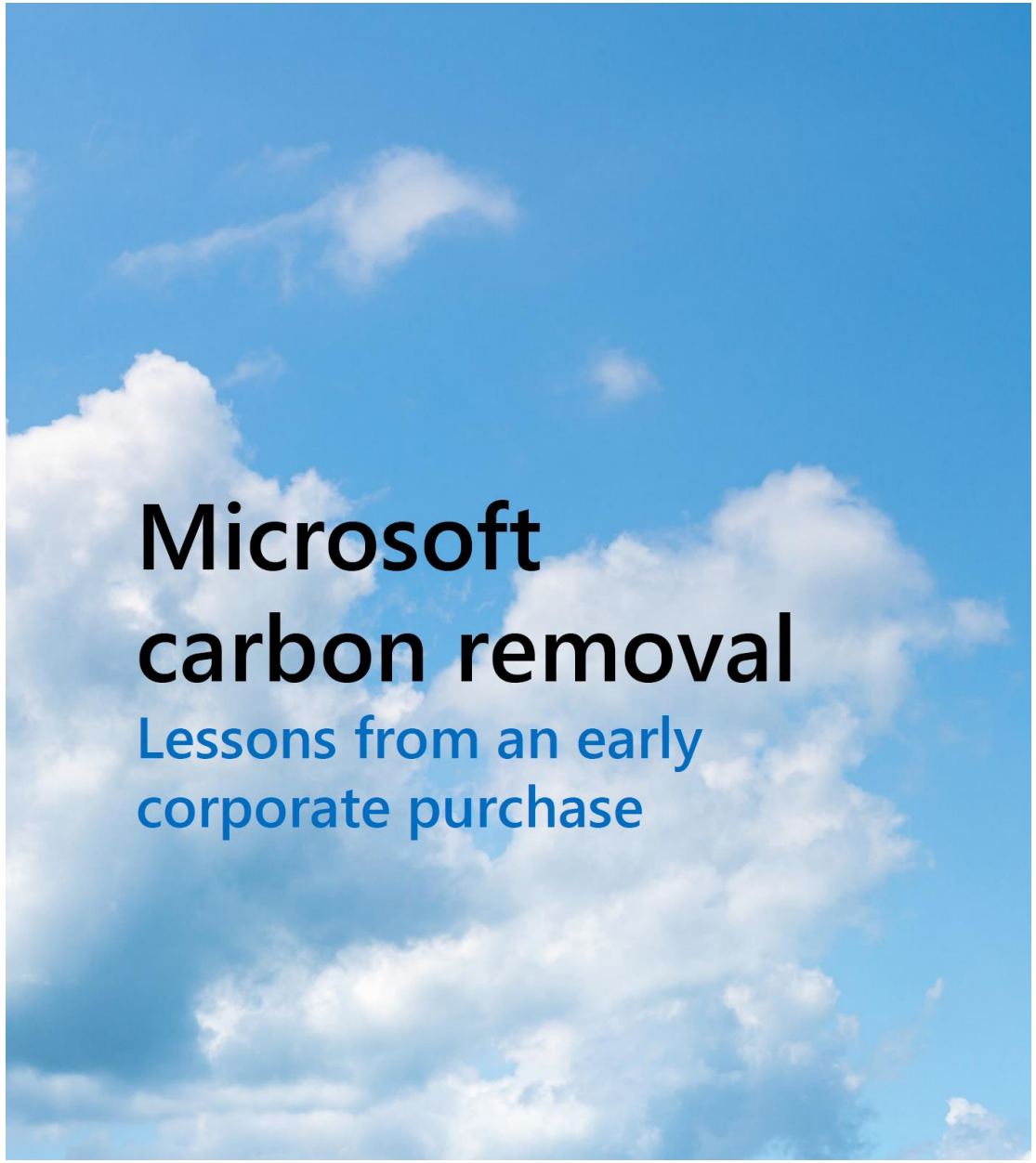
Summary

ISSUED BY	Regen Network Development, Inc: regen1mgfhgq
ISSUED TO	Wyelba Pty Ltd: regen1ud5g85
TIMESTAMP	Dec 16, 2020, 9:23 AM
# OF CREDITS	38,243
CREDIT UNIT	1 ton of CO2e
VINTAGE ID	634aabf4 View certificate »
VINTAGE PERIOD	2017-2019
MONITORING PERIODS	Monitoring Report 2017 (Baseline) View monitoring report » Monitoring Report 2018 View monitoring report » Monitoring Report 2019 View monitoring report » Soil Sampling Data View data »

PROJECT NAME	Wilmot
STANDARD ID	RND_PG, v1.0
CREDIT CLASS	Carbon*Plus* Grasslands, v0.9
CREDIT CLASS ID	RND_CC_0001
METHODOLOGY	Carbon*Plus* Grasslands, v0.9
METHODOLOGY ID	RND_M0001

BLOCKCHAIN DATA (DEVNET)

HASH	EE6DAD31188D4C86F2CD70006D6139480A4C54038076AE0DB799A1248E77A31E
HEIGHT	129,401
STATUS	success
TIMESTAMP	2021-03-17T10:15:19Z
MEMO	Credit Issuance to Wilmot
TRANSACTION FEE	0
TRANSACTION DATA	[



Microsoft carbon removal

Lessons from an early corporate purchase

Supplier	Project(s)	Location	Type	Description	Certification	Contracted durability	Contracted volume
Regen Network Development	Cavan, Wangella, Wilmot, and Woodburn	Australia	Soil	Increasing soil organic carbon through holistic cattle grazing management practices on four ranches totaling more than 18,000 hectares of grasslands	Regen	25 years	93,338 $mtCO_2$
Shell Energy North America	TIST India	India	Forestry	Restoration of historic dense forests by encouraging farmers to replant on degraded/unused land	Verified Carbon Standard	13 years	9,000 $mtCO_2$
Charm Industrial	Bio-liquid geologic sequestration	Oklahoma	Bioenergy with carbon capture and storage (BECCS)	Storing carbon dioxide in deep geologic storage as carbon-containing fluid produced from biomass	N/A (under development)	10,000 years	2,000 $mtCO_2$
Climeworks	Carbon Dioxide Removal	Iceland	Direct air capture	Removing CO2 from air and storing it underground	N/A (under development)	10,000 years	1,400 $mtCO_2$
Carbon Cycle via Puro.earth	Carbon Cycle	SE Germany	Biochar	Producing high-quality biochar from sustainable feedstock for use as soil additive and animal feed	Puro.earth (pending ICROA approval)	800 years	1,000 $mtCO_2$
Carbofex via Puro.earth	Carbofex	Finland	Biochar	Biochar from combined heat-and-power system, with the biochar used as horticultural substrates and water filter	Puro.earth (pending ICROA approval)	800 years	500 $mtCO_2$

https://query.prod.cms.rt.microsoft.com/cms/api/am/binary/RE4MDlc

Microsoft

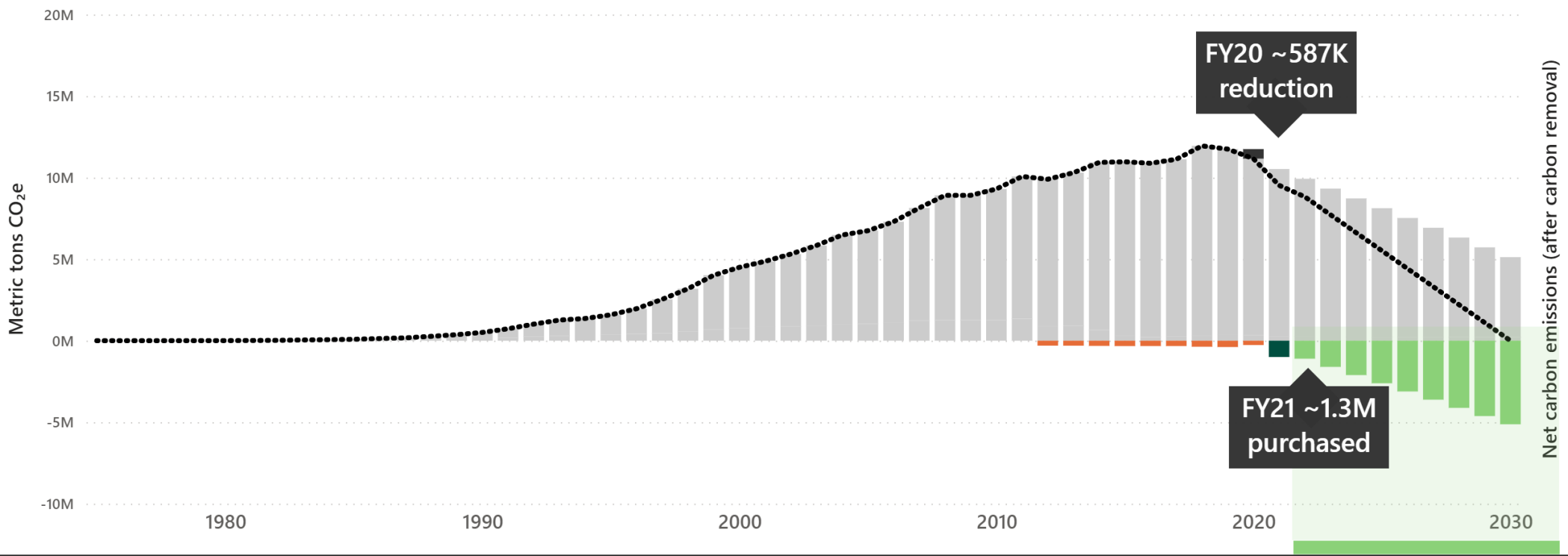
Download data

Carbon Removal in Microsoft's Carbon Negative Pathway

In FY21 we purchased ~1.3M metric tons as a starting point in our sourcing strategy.

Carbon negative | Contracted projects | Worldwide map | Project details

Annual carbon emissions



Legend

- Net carbon emissions (after carbon removal)
- Microsoft value chain emissions
- Year-over-year emissions reduction
- Avoided emissions offsets
- FY21 carbon removal
- Carbon removal

Chart has been updated to reflect latest actual values which incorporate latest methodology and structural change adjustments. Historic and projected emissions driven by latest actual data have also been updated for consistency. Projected removal values have also been updated consistent with our latest projected emissions and procurement strategy. A portion of the ~1.3M metric tons of removal will apply to future years.

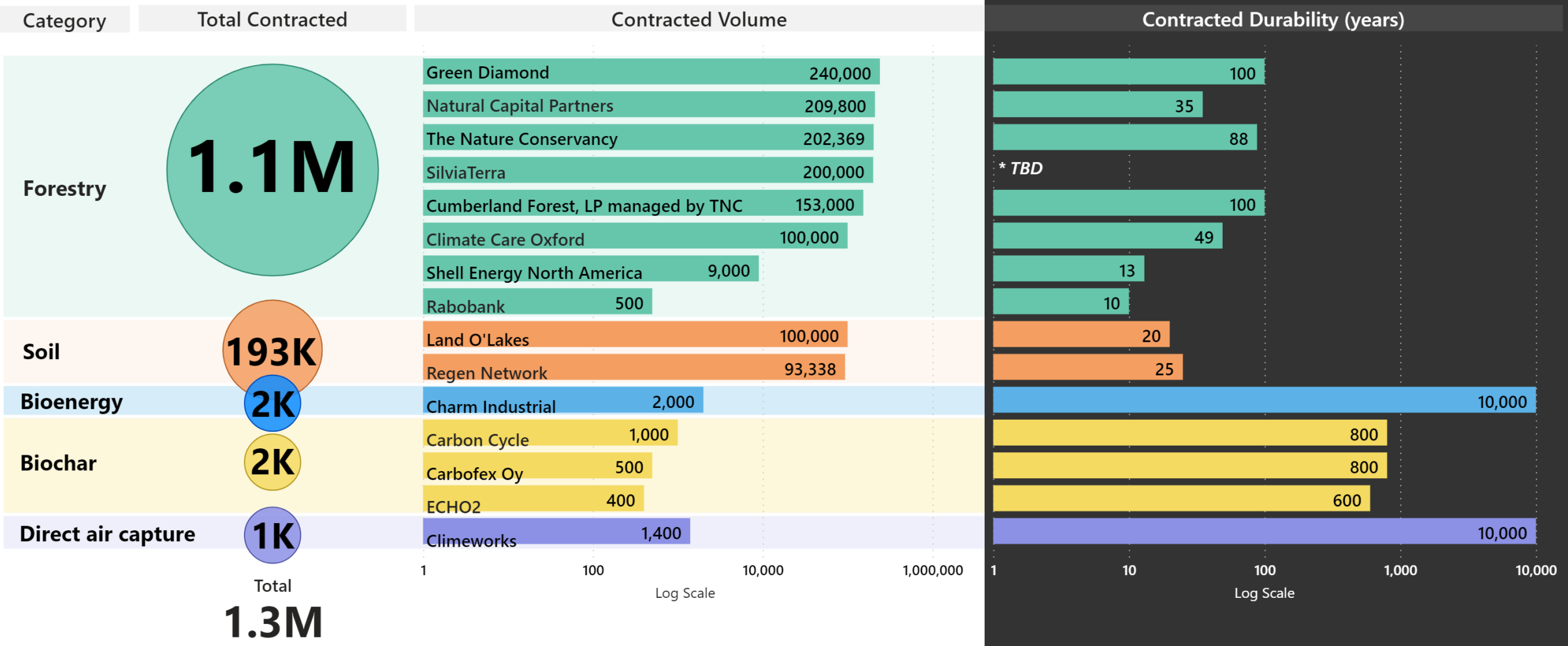
Visit https://aka.ms/carbonremovalwhitepaper for more information

Microsoft

Microsoft's FY21 Carbon Removal Portfolio

Download data

Carbon negative | **Contracted projects** | Worldwide map | Project details



Learn more

Visit aka.ms/carbonremoval for more information

Carbon offsetting

Vlinder

- Let's offset the carbon footprint of PSS 2021!
- Major contributions:
  - Flights
  - Car logistics

Offsetra

OFFSET KNOWLEDGE BASE FOR BUSINESS ABOUT US LOG IN

Offset by the tonne.

Estimations place the social cost of carbon (the economic damage caused by every tonne you emit) as high as $300. Pay now, so future generations don't have to.

Enter a desired quantity below.

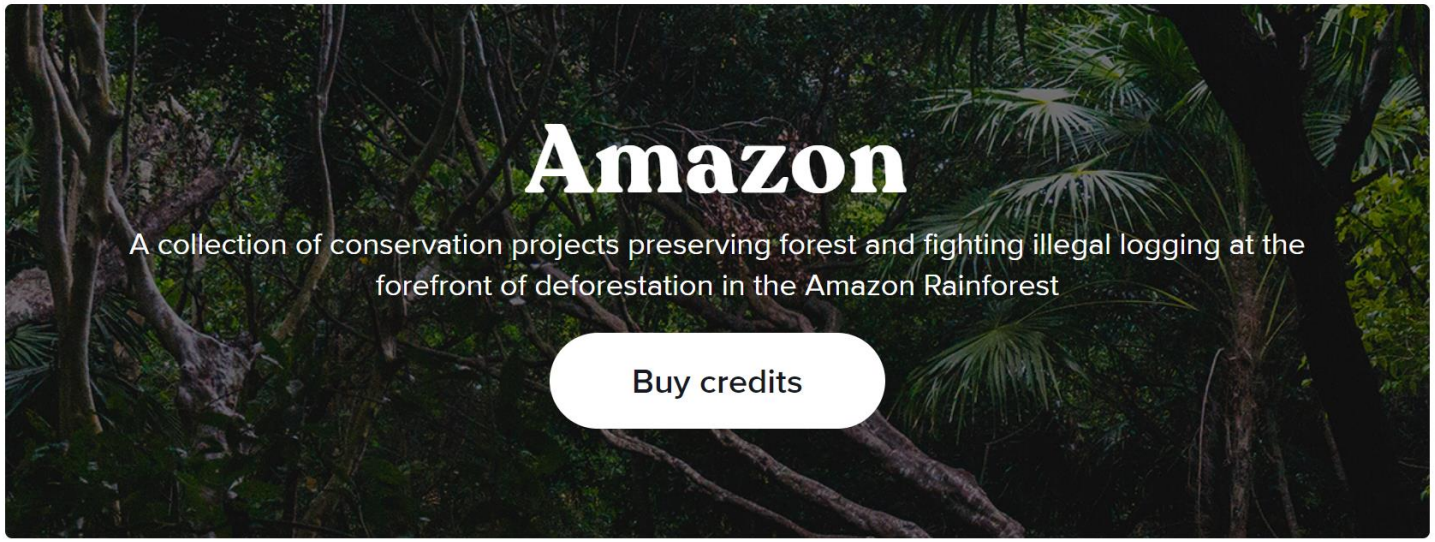
1 **tonne.**

Choose a project

- Agrocortex REDD Project (£9/T)
  Support forest and wildlife conservation in Amazonas, Brazil.
- (•) Bull Run Forest Carbon Project (£6/T)
  Support a forest protection and conservation project in Belize.
- Devarahipparigi Wind Project (£4.50/T)
  Support a renewable energy, clean water, and tree planting project in Karnataka, India.

£6 total.

← Back to Portfolios



Amazon

A collection of conservation projects preserving forest and fighting illegal logging at the forefront of deforestation in the Amazon Rainforest

Buy credits

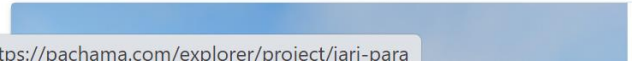
Projects in Amazon

Brazil

FRESH INSIGHTS

Jari Pará

REDD+ Avoided Unplanned Deforestation
513 000 hectares
Verified Carbon Standard



Brazil

Join our

SPOT EXCHANGE

And be among the first to see how easy it is to buy, trade and hedge carbon.

Join Now!

AirCarbon Exchange

Singapore Office:
The Centrepoint, 176 Orchard Rd,
#05-05, Singapore 238843

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MARKET OVERVIEW | COMPLIANCE | VOLUNTARY | WATER | ORDERS & TRADES | HOLDINGS | FIRM | VCU | + | Time: 22:19:35 | Mode: READY | Status: NORMAL | 16 | Sergei Ivliev

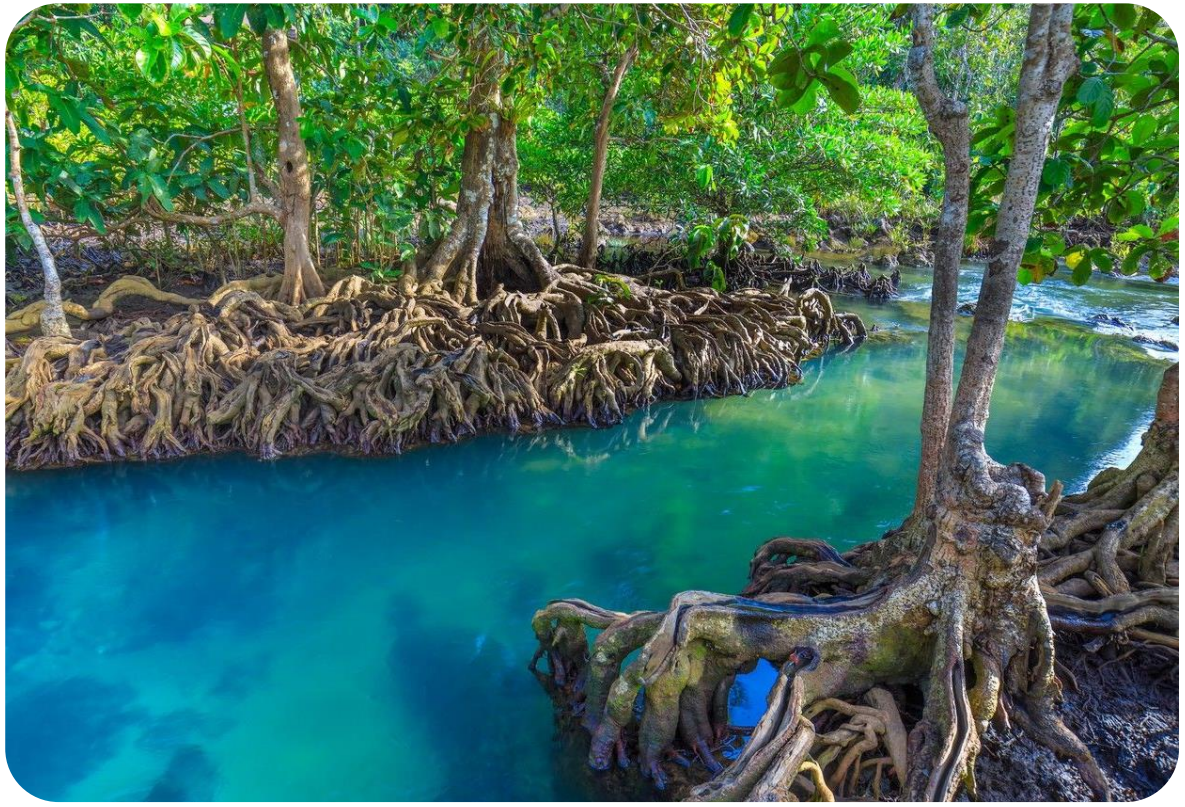
BIDS & OFFERS

Actions	Instrument			Buy								Sell								
Actions	Standa...1	Project Type 2	Country 3	B Vintage	B Project	Infc	Bid Sum	A	X	Bid Vol	Bid	Ask	Ask Vol	Lift	X	A	Ask Sum	Infc	S Project	S Vintage
B S	GS-VER	Other	Asia/Turkey									USD 1,85	200 000				200 000			
B S	GS-VER	Solar Thermal - Electricity	Asia/China									USD 4,25	4 293				39 293			
B S	GS-VER	Wind	Asia/Turkey									USD 4,25	5 000				5 000			
B S	VCS-VCU	Energy Demand	North America/Canada									USD 29,00	10 000				17 949			
B S	VCS-VCU	Energy Industries - renewable/non-r	Asia/China									USD 1,50	38 503				142 703			
B S	VCS-VCU	Energy Industries - renewable/non-r	Asia/India				70 000			70 000	USD 1,35	USD 1,10	41 111				139 148			
B S	VCS-VCU	Energy Industries - renewable/non-r	Asia/Indonesia									USD 2,00	8 387				8 387			
B S	VCS-VCU	Energy Industries - renewable/non-r	Asia/South Korea									USD 1,65	50 000				50 000			
B S	VCS-VCU	Energy Industries - renewable/non-r	Asia/Turkey									USD 1,75	54 135				92 417			
B S	VCS-VCU	Energy Industries - renewable/non-r	Asia/Vietnam									USD 2,90	21 810				21 810			
B S	VCS-VCU	Forest Carbon	Africa/Congo - Brazzavill									USD 7,10	400 000				405 000			
												USD 7,10	100 000	L					934	2012
												USD 7,10	100 000	L					934	2012
												USD 7,10	100 000	L					934	2012
												USD 7,10	100 000	L					934	2012
												USD 8,10	5 000	L					934	2012
B S	VCS-VCU	Forest Carbon	Africa/Malawi									USD 7,50	7 097				7 097			
												USD 7,50	↑↓ 7 097	L					1168	2013
B S	VCS-VCU	Forest Carbon	Asia/Cambodia									USD 6,25	40 713				40 713			
												USD 6,25	↑↓ 40 713	L					1748	2016
B S	VCS-VCU	Forest Carbon	Asia/Indonesia									USD 5,50	10 000				59 200			
												USD 5,50	10 000	L					674	2014
												USD 6,55	↑↓ 43 822	L					674	2016
												USD 6,80	5 178	L					674	2017
												USD 7,45	↑↓ 200	L					674	2013
B S	VCS-VCU	Forest Carbon	Latin America/Brazil									USD 4,25	24 221				24 221			
												USD 4,25	↑↓ 24 221	L					981	2016
B S	VCS-VCU	Forest Carbon	Latin America/Colombia									USD 4,45	2 502				2 502			
B S	VCS-VCU	Forest Carbon	Latin America/Guatemal									USD 6,50	8 500				8 500			
												USD 6,50	↑↓ 8 500	L					1622	2017
B S	VCS-VCU	Forest Carbon	Latin America/Peru									USD 5,90	20 000				70 000			
												USD 5,90	↑↓ 20 000	L					985	2014
												USD 7,50	↑↓ 50 000	L					1360	2018
B S	VCS-VCU	Manufacturing industries	Asia/Thailand									USD 3,60	1 000				1 000			
												USD 3,60	1 000	L					403	2014
B S	VCS-VCU	Waste handling and disposal	Asia/Thailand									USD 2,20	20 043				20 043			

Mangroves are wonderful

Vlinder

- 5 times more carbon
- Home for 100s species
- Protect corals & coast
- 13 mln ha globally
- 3.6 mln ha lost since 80s
- 1 ha generates $194k/yr*



* DeGroot et al., 2012

Communities are ready to restore

- Eco heroes
- CBOs / Youth groups
- Volunteers / NGOs

Reforestation is intensive and costly

Vlinder

- Seed collection
- Nurseries
- Wetland/tide
- $1 per tree
- 2-4k trees/ha

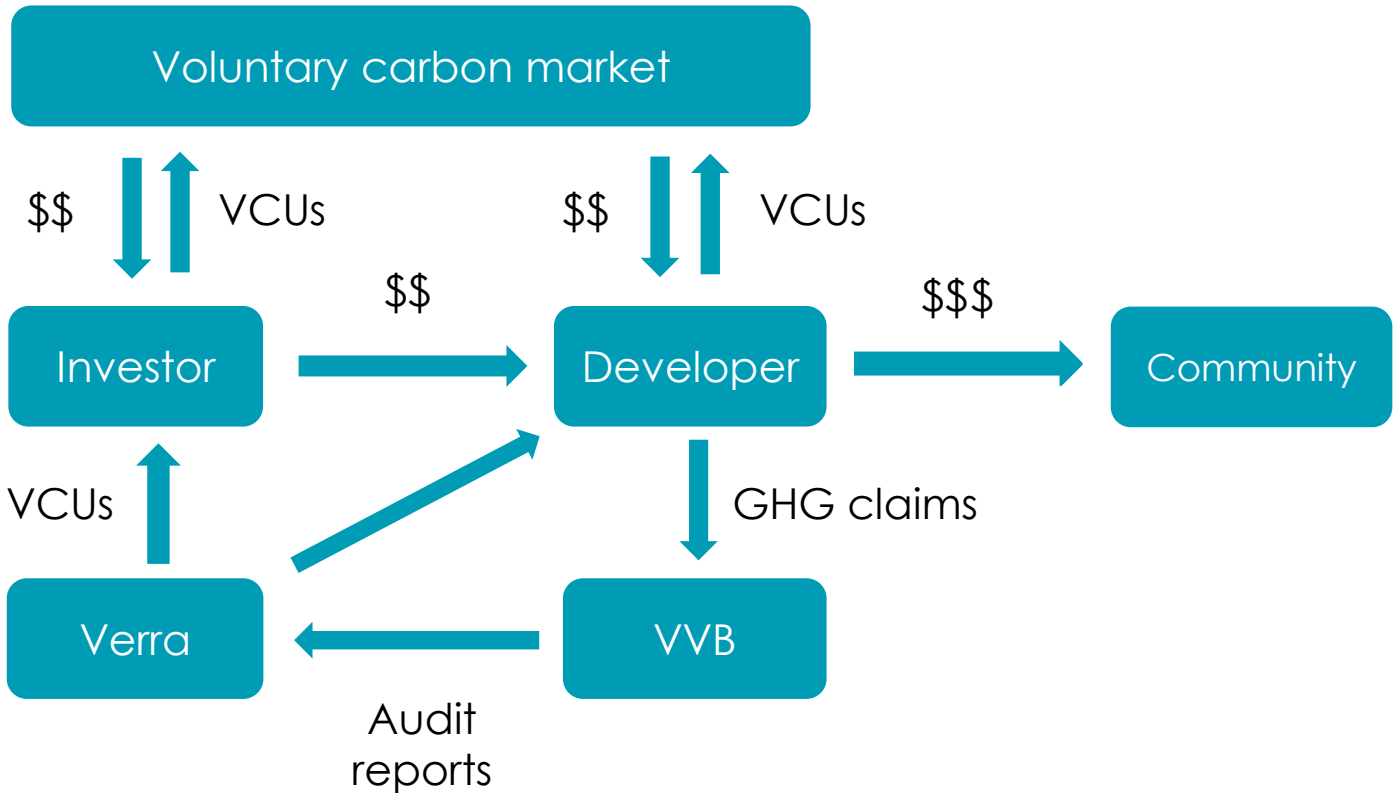
Reforestation is risky

Vlinder

- Survival rate 50-90%
- Tsunamis
- Cyclones
- Tidal patterns
- Illegal logging

Carbon finance mechanism

- Capacity building
- Early stage funding
- Long term incentives
- Audited sequestration
- Verified cobenefits

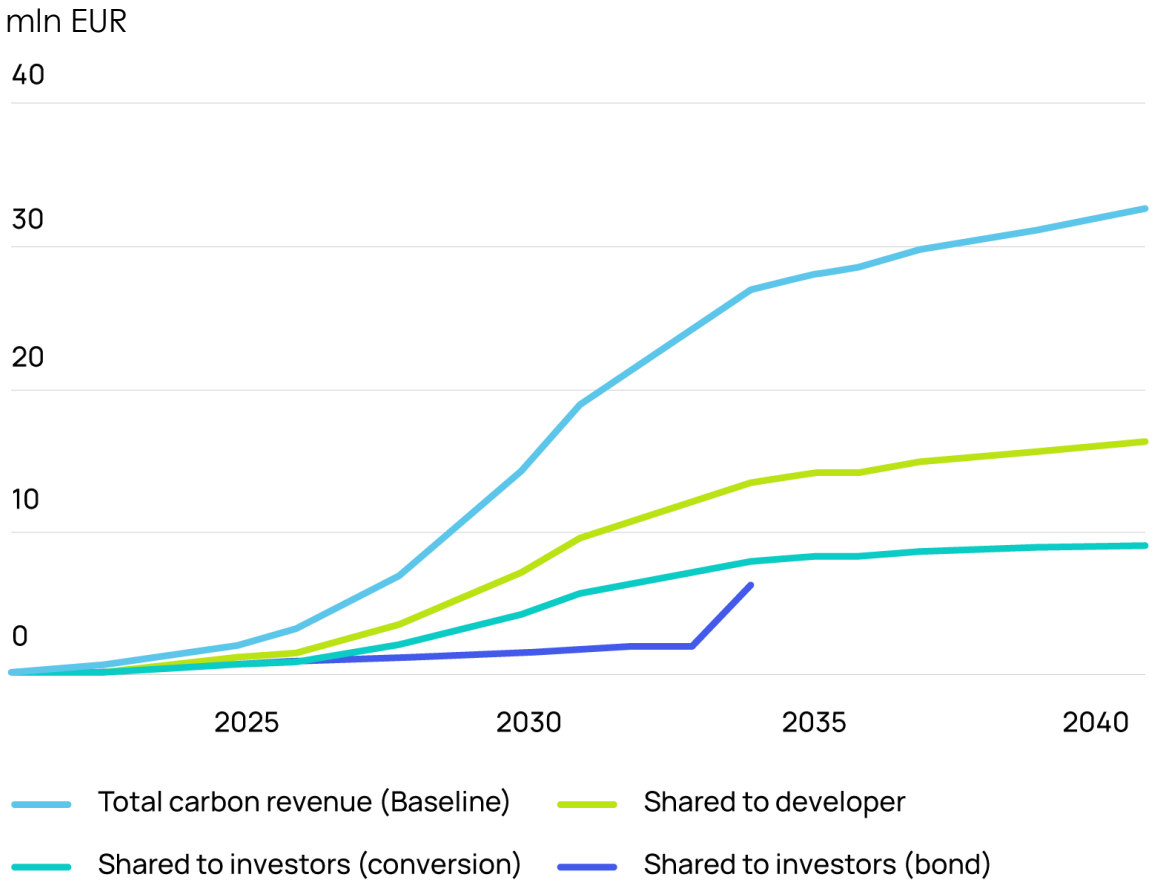


Funding vehicles

	Donations	Philanthropy	Project funding	Offtake agreement	Green bond	Fund
Description	Crowdfunding campaigns, P2P	Institutional donor funding	Carbon project development	Contracting future carbon	Issuance of a green bond	Issuance of a climate fund
Contributors	Retail	Foundations	Carbon brokers & developers	Companies	Institutional investors	Institutional investors
Complexity	Small	Medium	Medium	High	Very high	Really high
Size	$10k-50k	$50k-500k	$500k-5m	$500k-5m	$5m-50m	>$50m
Examples	*TreeBuddy*	*Mikoka Pamoja / DiCaprio*	*SWAMP / ALLCOT*	*Cool Effect / Salesforce*	*Vlinder Blue Bond*	*Livelihoods Carbon Fund*

Vlinder Blue Bond

- 1.25m tCO2 blue carbon
- 1500 ha in 3 countries
- Issued in Liechtenstein
- 4 mln EUR 13Y @ 4.5%
- 5Y conversion 70% equity
- IRR up to 10%
- Tokenization



Vlinder Blue Bond

Invest in blue carbon. Empower people. Make a planetary impact.

€4 mln
Invested

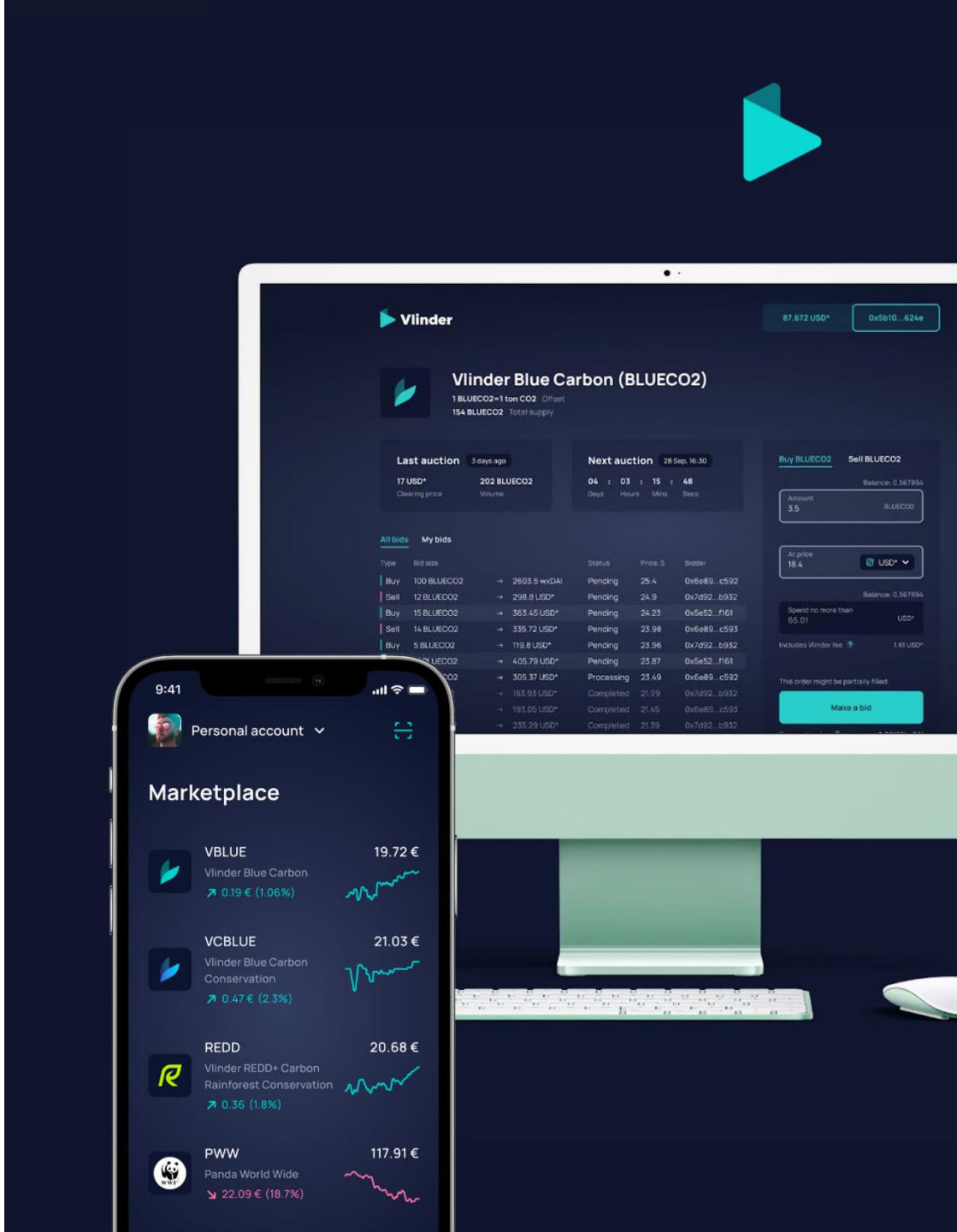
€8.7 mln
Direct benefits for communities during the project implementation

€242 mln

Long-term ecosystem benefits generated yearly

What is Vlinder?

- Impact-tech platform
- Vertically integrated
- Strategic focus on Blue carbon
- Community and nature first
- Bringing trust and transparency to carbon market



Vlinder product line

Retailer	Retail carbon offsets	*Klima, Yayzi, MOSS*	Vlinder sells tokenized carbon to individuals for investing and offsetting	*Carbon Tokens (1tCO2, SDG Carbon Token)*
Carbon broker	B2B carbon offsets	*Compensate, Offsetra*	Vlinder sells its own carbon and 3rd party high-quality carbon to companies in DACH region	*Earth Positive program, Carbon Tokens*
Exchange	Carbon marketplace	*Xpansiv CBL, AirCarbon*	Vlinder builds blockchain-based exchange for natural capital assets	*Vlinder Exchange, Vlinder Vault*
Verifier / registry	Issuing carbon credits	*Pachama, Regen, Plan Vivo*	Vlinder develops methodology for carbon verification, (potentially) DLT-based registry	*Vlinder carbon verification system*
Project investing	Carbon financing	*ALLCOT*	Vlinder directly invests into early stage carbon projects in return for carbon rights	*Vlinder Myanmar Blue Carbon*
Project development	Project development	*WIF*	Vlinder develops its own carbon projects	*Vlinder Kenya*